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WHAT DOES FARM STRUCTURE IMPLY FOR FUTURE FARM POLICY?

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The structure of the U.S. agricultural sector has changed throughout our history. Particularly important from a policy perspective, this evolution has left us with an agricultural sector significantly different than existed in the 1930's when the foundation of much farm commodity policy was established. Farm numbers appear to have stabilized at just over 2 million. Most farms today are small and account for only a modest share of agricultural production, even if they control three-fourths of the country's farmland. The largest farms operating on the other quarter of farmland grow more than 60 percent of food that enters commercial channels. Almost two thirds of all farm operators do not regard farming as their main occupation, but rather live on farms as a retirement or residential lifestyle choice. Many of you are by now familiar with the Economic Research Service (ERS) farm typology, that categorizes farms into homogeneous groupings based on what farmers surveyed say is their main occupation. The typology is one way of looking at the diversity that characterizes American farm structure today. Recent ERS work on the definition of a farm safety net uses the typology to take explicit account of the marked differences in aspirations and circumstances across farm households when examining how income goals might be met (Gundersen, et al., 2000).

The typology is based on the occupation of operators and the gross sales class of the farms combined. It is constructed using annual national farm survey data collected by USDA. As such, the data provide a statistically reliable picture of American farming. The typology identifies five groups of small family farms (sales less than \$250,000) and two groups of larger family farms, plus a non-family farm group (Hoppe, et al., 1999).

- Limited resource. Any small farm with gross sales less than \$100,000, total farm assets less than \$150,000, and total household operator income less than \$20,000. Limited resource farmers may report farming, a non-farm occupation, or retirement as their major occupation.
- Retirement. Small farms whose operators report they are retired.
- Residential/lifestyle. Small farms whose operators report a major occupation other than farming.
- Farming occupation/lower-sales. Small farms with sales less than \$100,000 whose operators report farming as their major occupation.
- Farming occupation/higher-sales. Small farms with sales between \$100,000 and \$249,000 whose operators report farming as their major occupation.
- Large family farms. Farms with sales between \$250,000 and \$499,000.
- Very large family farms. Farms with sales of \$500,000 or more.
- Non-family farms. Farms organized as non-family corporations or cooperatives, as well as farms operated by hired managers.

This typology now forms the basis for disaggregating ERS reporting on farm household and business performance.

The typology provides a perspective on farm structure that allows examination of its implications for farm policy. Traditionally, the farms most active in the policy debate are those that produce what are known as "program" commodities (wheat, feedgrains, cotton, rice, sugar, dairy, peanuts) addressed by the New Deal legislation that forms the foundation for today's farm legislation. Examining the characteristics

of farms by category in the typology, it is seen that the smaller family farms are more likely to specialize in non-program commodities, particularly in beef cattle, which often have low labor requirements compatible with off-farm work and retirement (Chart 1). Even when cash grain program commodities are an emphasis, these operations are generally too small to qualify for much in the way of Federal benefits. Farms with the most at stake in the agricultural policy debate are family farms whose operators are full-time farmers, not the limited-resource, retirement, or residential/lifestyle farms. Non-family farms may participate in Federal programs, too, of course, but number about 40,000 and account for only 2 percent of all farms. About one quarter of these farms receive payments under the terms of the 1996 farm bill.

Family farms run by a full-time farmer comprise roughly a third of the nation's 2.1 million farms. While many of these 750,000 farms are alike in their focus on program commodities, there are differences among them that are key in understanding their preferences for farm policy. Significantly, it turns out that farms even within the same typology category are different from one another in their ability to cover their costs of production. Perhaps not surprisingly, cost competitiveness has an important bearing on the impact that policy has on a farm. One might reasonably expect, then, that a farmer's preferences for one kind of policy or program over another would be strongly related to the expected impact of an alternative on his or her own operation.

A look at the distribution of the economic costs of wheat production provides a good illustration of the variability in financial position across farms. Considered here are farms that specialize in wheat, thus having much at stake in wheat policy outcomes and accounting for just over one third of all U.S. wheat production. Economic costs include total cash costs plus an allowance for depreciation, along with an imputed return to management and to unpaid labor of the operator and family. With the focus on long term economic viability, there are clear distinctions in financial performance across the estimated 35,000 U.S. wheat farms in operation in 1999 (Chart 2). Classifying wheat farms by economic cost per dollar of revenue, a measure of financial efficiency allows identification of three distinct groups. The most financially efficient farm businesses cover their economic costs, i.e., cost per dollar of revenue is below one. Financially efficient ("low cost") farms account for 35 percent of all wheat farms and produce just over half of all the wheat grown on specialized farms. In proportion to their production share, wheat farms in the financially efficient group receive close to 50 percent of all Federal payments to wheat farms, but for most of them, market revenue alone was sufficient to cover all costs. At the other extreme are the least efficient ("high cost") wheat farms, with costs more than half again as large as returns, cost per dollar of revenue is 1.5 or higher. These account for 33 percent of all wheat farms but for just 14 percent of wheat production. Other sources of income or equity are required for these farms to remain viable. Farms in the "mid cost" efficiency group, representing the final third of wheat farms, with costs per dollar of revenue between 1 and 1.5, account for the remaining 32 percent of wheat production and represent farms that are close to being financially viable.

These marked differences in cost structure have policy significance that is often overlooked. Most farm policy analysis is conducted in an aggregate framework, one that essentially imputes identical cost structure across farms. But this implicit assumption of homogeneity masks considerable differences in the way farms of differing cost structure experience the effects of policy (Chambers, 1992). Financially efficient producers tend to favor policy that makes the most of their cost advantage (often stemming from economies of scale) by permitting them to produce without restrictions on output, acreage or crop choice. Direct payments that provide unit returns in excess of their marginal costs encourage production beyond the point that would maximize profit in a free market. Higher cost farmers, on the other hand, tend to prefer supply controls. These farms save proportionally more than their low cost brethren for each acre taken out of production simply because their costs per acre are higher. And, when supply restrictions raise prices, more of their costs are covered by market returns. The unfettered production/direct payment policy penalizes them, relative to the low cost farms, because their costs are unchanged but market price

is driven down as low cost producers expand supply. Direct payments may or may not fully compensate for the difference between market price and their higher production costs.

These cost differences are particularly important considering elements of the farm policy debate now emerging. One would expect that low cost producers would prefer the approach of the 1996 farm bill that frames policy today. Higher cost producers, however, would prefer a return to supply management. Certainly, both these viewpoints are currently found within the farm community. This division between high and low cost producers, though, does not break down along the lines that traditionally have divided sides in the farm policy debate. First, low cost production is not the exclusive preserve of large and very large farms (Chart 3). In fact, there are sizable portions of each farm typology group that cover economic costs, although it is true that financially efficient farms are more likely to be found among the larger operations. Second, the geographic location of a wheat farm does not determine its cost position. While there are differences across regions in the distribution of high, mid, and low cost farms, there are farms in each category in each region. Chart 4 considers the entire population of wheat farms, whether specialized or not. Third, commodity specialization does not determine financial efficiency. For example, it is the case that about one third of farms that specialize in corn break even (Chart 5), similar to wheat. And, looking across the range of program commodities, all are characterized to a greater or lesser extent by the same marked differences in production costs across farms seen in the case of wheat.

These very real differences in financial efficiency and the differences they imply for the way that farmers experience the effects of policy are likely to make it difficult to reach consensus on the appropriate form of policy intervention. This is true even if all are agreed on the goal of raising farm income. Fundamentally, farm politics is about the distribution of benefits, which is why the devil is in the details of farm program design and implementation. Program designs that do not account for these differences across farms will likely not be politically sustainable. Selecting an aggregate income or revenue goal as a target for determining policy intervention without considering these distributional consequences is therefore not likely to provide a lasting farm policy solution, if in fact that is what is desired. Of course, the alternative of targeting policy, whether by cost differential or another structural farm characteristic, has not been the practice in the U.S. Here, targeting would involve the cost of identifying each farmer's place in the distribution of cost of production, requiring quite a bit of information gathering and also creating the incentive for gaming by program participants. And there could be a political cost to making clear the distribution of benefits of farm policy. Nonetheless, targeting could theoretically match policy preferences to these important structural differences across farms.

Conflict over agricultural policy might be avoided if programs could be designed so that targeting occurs voluntarily because it follows a participant's self-interest. For example, in the U.S. it has been the experience that large and very large family farms idle very little land in the Conservation or Wetland Reserve Programs. On the other hand, farms whose operators are retired or who do not regard farming as their main occupation account for close to 40 percent of the acreage in the programs although they account for only about 20 percent of all farmed acreage. To the extent that these operators are also among the relatively large portion of mid- to higher-cost farms in their categories, then, they may have come out ahead if the amount it would have cost to keep the now-idled land in production exceeds the conservation program payment. Because participation in the reserve is voluntary, low cost producers are not compelled to forego their financial advantage in commodity production. So, voluntary mechanisms may offer some hope for resolving the tension between high and low cost producers and could avoid incurring the administrative and political costs of gathering information necessary to target program delivery based on individual farm cost of production (Chambers, 1992).

The U.S. is not alone in facing very different policy preferences within a diverse domestic agricultural sector. The countries of the European Union face similar divides between more and less financially efficient farmers. These differences can help explain the European sentiment in favor of “multifunctionality,” which is the notion that farmers could be compensated for producing something in addition to farm crops or livestock, even if it is difficult to define the nature of these non-commodity outputs (such as landscape amenities or cultural values). Presumably, if payments made for non-commodity outputs were high enough, then higher cost producers might be insulated from the financial pressure they experience if market prices fall below their cost of production. Some support in this country for so-called “green” payments would appear to be predicated on the same thinking. Any “multifunctional” payment scheme would presumably have to pass muster with respect to international commitments to trade liberalization, which could prove problematic if payments are not clearly linked to a well-defined non-commodity farm output.

Confidence in highly aggregated measures of financial performance and wellbeing (such as national net farm income) ought to be tempered by knowledge of the diversity in the sector. There are systematic underlying differences between high and low cost farms. Financially efficient farmers make more effective management decisions on production practices and technologies, marketing strategies, and financing (Morehart, Kuhn, and Offutt, 2000). The skill of the operator is strongly related to his or her age and education. Still, some mid-cost farmers may also be constrained in their ability to lower input costs if their farms are sited on unfavorable soils or in areas with difficult weather or pest problems. Policy that recognizes these differences and is tailored to reducing production costs has perhaps the greatest potential to level the domestic playing field. The investments in research and education that underpin improvements in agricultural cost competitiveness also conform to international commitments to avoid distorting trade.

It is easy to say that one-size-fits-all policy is no longer appropriate for a diverse farm sector. It is another matter to find agreement on policy that recognizes those differences. However, an appreciation of the heterogeneity in farm structure and performance can lead to understanding of the roots of differences in aspirations across farm households and in program impacts across farms. To the extent that economic self-interest influences farmers’ policy preferences, more divides the farm community than ideology. But also bear in mind that agricultural policy outcomes can be influenced by considerations outside the farm sector, most notably by concerns about the Federal budget exposure created by farm programs. A constrained budget climate may lend support to advocates of supply control, as in the late 1980’s. In more free-spending times, direct payments appear tolerable. Even so, consensus will likely be hard to come by.

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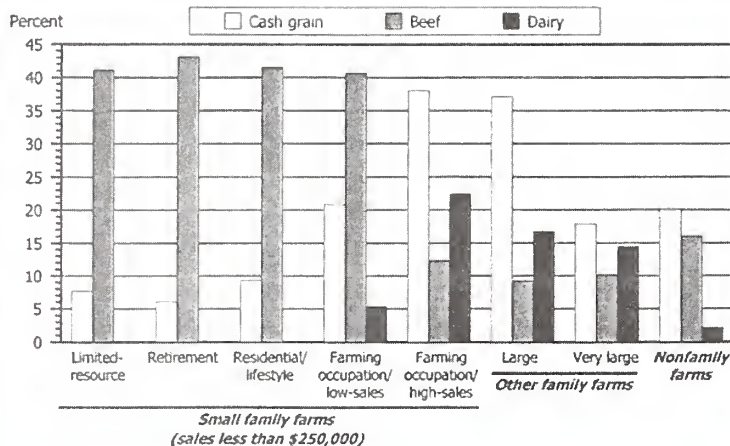
What Does Farm Structure Imply for Future Farm Policy?

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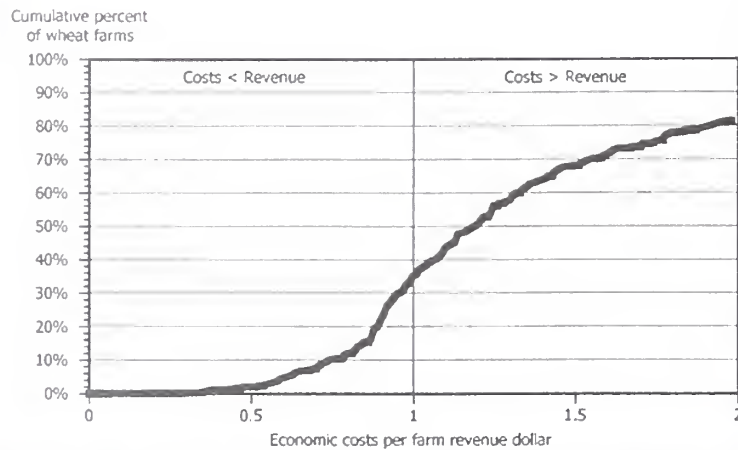
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Share of farms specializing in cash grains, beef, and dairy, 1999

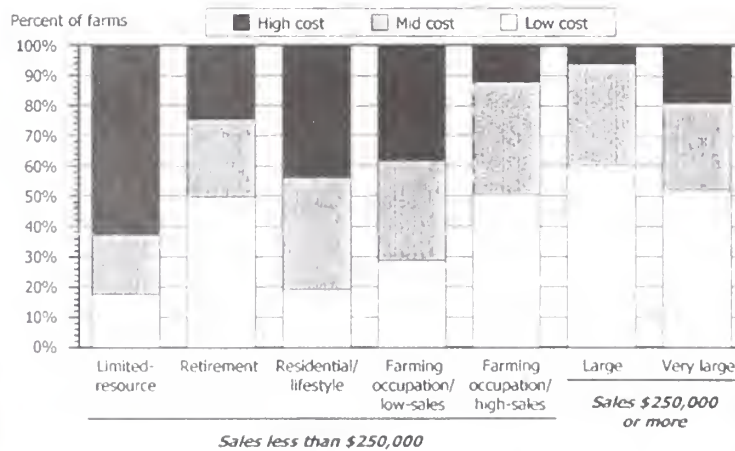


Economic costs for wheat farms, 1999



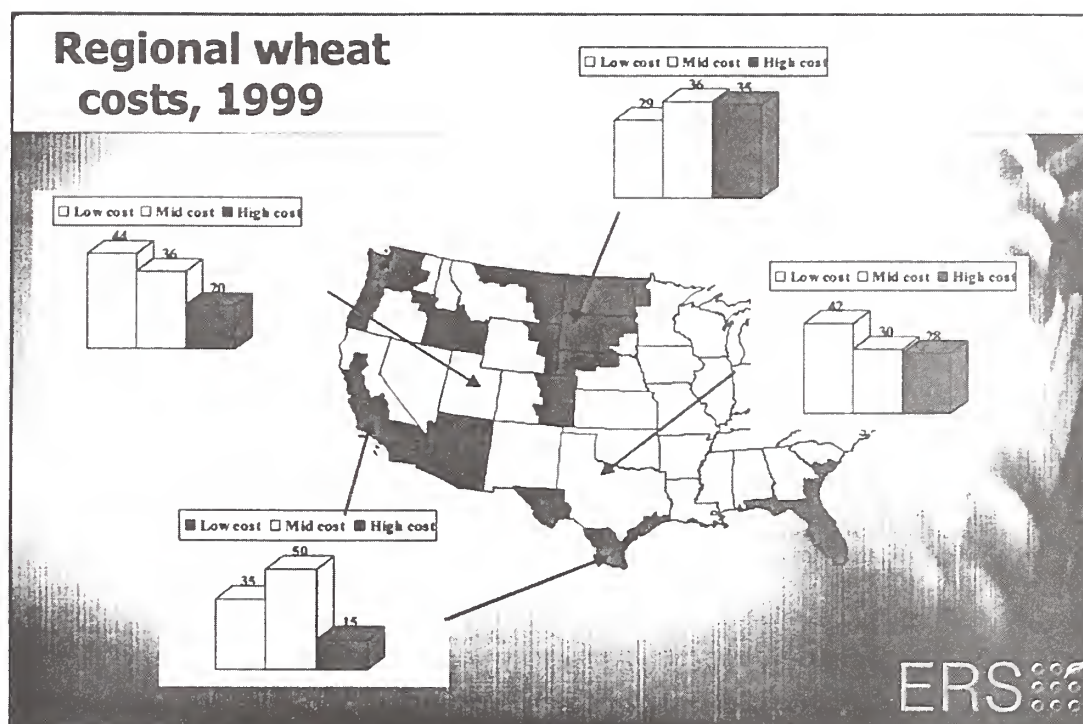
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Economic costs of wheat farms, by typology groups, 1999

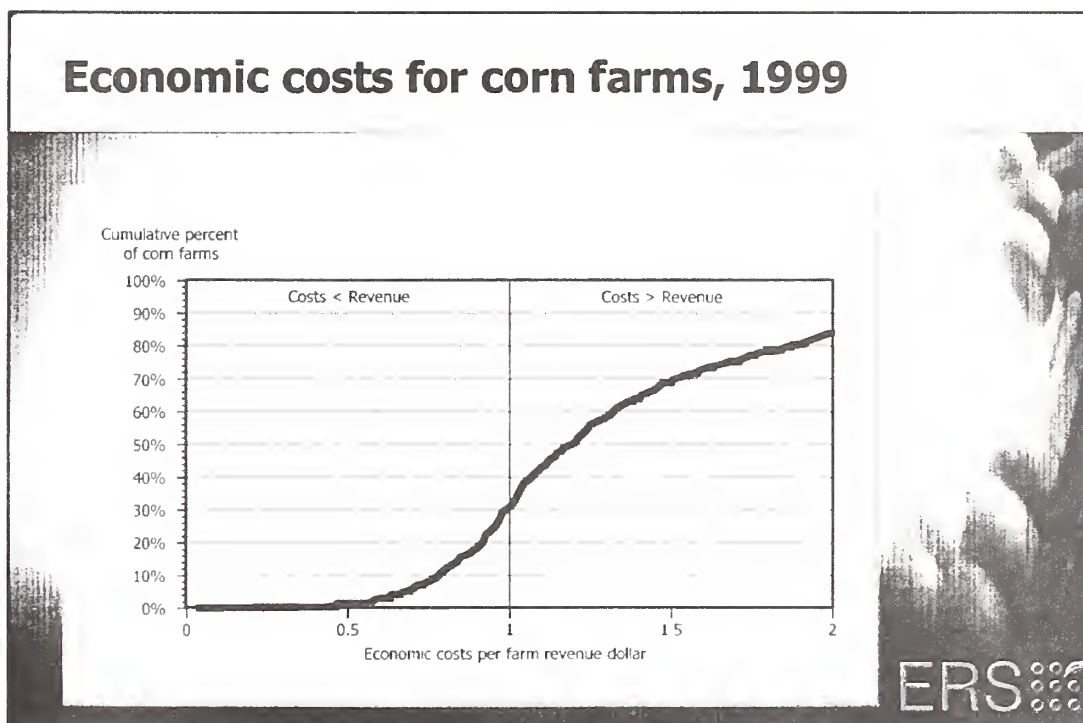


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Regional wheat costs, 1999




Economic costs for corn farms, 1999





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SHOULD THERE BE A FEDERAL FARM INCOME SAFETY NET?

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Whether there should be a federal farm income safety net, and more precisely what form it should take, are timely questions as Congress prepares to write multi-year legislation to replace the 1996 Federal Agriculture Improvement and Reform (FAIR) Act. For most agriculturalists, the answer to the first question is an obvious and unambiguous affirmative. Others will cite characteristics of modern production, marketing and farm demographics to answer the second question with substantial restraint. The lack of enthusiasm is not about a safety net *per se*, but about what should be the federal government's involvement. There are many opportunities to spread risks and carry income across years in a free society, and government-provided mechanisms are only some of the options. Private consumption smoothing is a touchstone of economic reasoning and is amply supported empirically. Every American farmer has borrowed or saved at one time or another consistent with their perceived lifelong level of income.

So should there be a federal farm income safety net? Calls for expansion of these support programs are widespread. Rather than say simply "yea or nay" there are cautionary flags about various forms of safety nets that merit attention. One caution is against *policy overshooting with cash payment*. Many safety net policies have production-inducing effects that partially offset the payments, and to this extent they provide less relief from low farm prices or incomes than it appears. A second caution is against *reversion to a supply-restricted market-intrusive safety net* provided through acreage or marketing constraints used in conjunction with price supports. This policy combination has for the most part been abandoned, but is still sometimes applied (to sugar, for example) and there are calls for its renewal for other crops. Taking these two different risks into consideration, I conclude by offering one preliminary suggestion about the kind of safety net mechanisms needed for agriculture to have a sound market basis.

Market-Oriented Transition in Farm Policy

American agriculture scarcely resembles the troubled sector of 70 years ago when the average income among six million farmers was less than one-half the national average. Agricultural productivity has improved through technological advances, capital investments and farm consolidation. The modernization of agriculture has allowed the real price of food to fall without impoverishing efficient farmers, and the farm/nonfarm income gap has mostly been eliminated. This itself is evidence of markets working, although interventions undertaken to prop up prices have sometimes idled farm resources and distorted incentives.

Reforms of farm policy have been undertaken as the production of food and employment and income of farmers have undergone dramatic changes. The basic direction of policy reform has been a shift from acreage supply controls combined with price supports above market-clearing levels to less supply intervention and more direct income support, at least for crops that are exported. This policy evolution toward direct payments began in the mid 1960s when price support levels were lowered for corn, wheat

and cotton to enhance U.S. competitiveness, and farmers were offered payments as compensation. A substantial further advance came in the mid 1980s, when price supports set too high in anticipation of inflation and a low-valued dollar that did not materialize were dropped nearly 25 percent, with direct payments once again offered to farmers.

The 1996 FAIR Act marks a third stage in this progression of farm policy away from supply management. The basic features of the FAIR Act are well known—AMTA payments decoupled from prices and planting decisions, planting flexibility, elimination of annual acreage reduction programs (ARPs), and nominal caps on loan rates. These policy moves were accompanied by others that were less reformist: the decoupled payments to farmers were high in 1995-96 even though prices were also high and support programs for dairy, sugar, and peanuts were extended. The FAIR Act did not put farm policy on a new *strategic path* of reform in 1996. As I argue with co-authors Robert Paarlberg and Terry Roe in our recent book Policy Reform in American Agriculture: Analysis and Prognosis (University of Chicago Press, October 1999), crucial changes in farm program instruments were made, but the reform path Congress took in the FAIR Act was the familiar one of a heavily compensated “cash out” of farm programs.

Policy Overshooting

The FAIR Act initially made more federal dollars available to farmers than without a new farm bill and increased rather than decreased the number of farmers receiving government checks. These results were harbingers of things to come. A fiscally-disciplined transition to lower payments was written into the FAIR Act in 1996, and was to accompany deregulation of most production under an optimistic reform scenario. Instead, farm policy has incurred multiple costly additions.

1. *Nominal loan rates have been above market prices, inducing marketing loan payments of billions of dollars (\$1.8, \$5.9 and \$7.6 billion in calendar years 1998, 1999 and 2000, respectively).* Before the FAIR Act, loan rates had been lowered (in the 1985 farm bill) and then adjusted to remain below market-clearing levels, albeit with reliance on annual land idling. Under the FAIR Act, loan rates have been held fixed in nominal terms, first because the legislated caps prevented upward movements when market prices were high, and subsequently when the Secretary of Agriculture exercised discretion not to adjust rates downward based on a moving average of lower prices.
2. *A lot of direct income support.* Under annual appropriations, AMTA payments were increased in 1998 and have been doubled for two years (1999, 2000). Enough income transfers have been made to keep total net cash farm income in 1998-2000 above the 1991-1995 level (\$55.1 billion annual average compared to \$53.7 billion) even though markets have been signaling a period of lower incomes. Unlike loan rates above market-clearing prices, the primary impact of AMTA payments is not production enhancing, but there are secondary production effects from providing cash fluidity to farmers. Lower levels of payments would have been enough to stabilize farm income with the other policies that were in place.
3. *Increased subsidies for crop and revenue insurance, ad hoc disaster payments, and expansion of commodity coverage.* Premium subsidies for all crop insurance coverage levels have been increased in the Agricultural Risk Protection Act of 2000. Disaster payments and other expenditures authorized in annual appropriations bills have added to the scope and fiscal cost of farm support.

The bidding war over farm policy that has escalated in a closely contested Congress and with emergence of fiscal surpluses has resulted in policy overshooting—the provision of too much support. This is not surprising, since historically farm stabilization policies at home and abroad have tended to stabilize upward. Much of the effect goes into land values, not farm operator income once the land resource is paid its competitive rental value. Payments have increased so much, particularly marketing loan payments, that the United States has (arguably) approached the limit on production-inducing expenditures set under commitments made in the WTO. That limit has begun to enter the farm policy debate, which is a change from the past when WTO commitments were somewhat tangential to discussion of domestic farm policy. There is now a risk that the U.S. commitment to a WTO *ceiling* on distortionary payments may be turned into a floor under such expenditures.

Intended and Unintended Effects of Safety Net Programs

Before the FAIR Act, production-inducing policies were counterbalanced by production-restricting interventions. This form of policy had welfare costs (much of the net loss economists measure from farm programs came from the lost use value of idled land). Under the FAIR Act, these net losses from land idling are avoided, but the U.S. agricultural system is vulnerable to production-expanding policies. Some of the interventions intended to help may be hurting instead, increasing production and retarding adjustments that would restore more profitable (market-derived) equilibrium conditions.

The basic economics of safety nets warrant exposition. Payments-based safety nets to protect farmers from losses come in various forms, from loan rates that protect farmer's returns when market prices fall, to subsidized crop or revenue insurance, to proposals for various counter-cyclical payments linked to some aggregate measure of crop-specific or multiple-crop sectoral income. The safety-net rationale has a common-sense underpinning. In agricultural markets, demand and supply are inelastic (not very price responsive) in the short run, and are subject to relatively large shocks from factors such as weather, exchange rates or cycles in economic growth. This can result in sharp price and income movements without a safety net in place. With a safety net, farmers are spared the full effects of adverse movements in prices and incomes (as illustrated in figure 1 for a hypothetical demand shift and provision of a "safety net price"). So far, so good, but production is kept above its level otherwise when the safety net kicks in, and the market price is pushed downward. Part of the safety net payments that farmers receive from the government simply offset lost market-derived farm income.

Moreover, there is a secondary effect of the safety net on farmers supply decisions. Knowing that they are protected from the lower tail of possible price, yield or income distributions, farmers will shift their supply function, as shown by S_2 compared to S_1 in figure 2. This adds to the available supply when the safety net is operative, putting additional downward pressure on the market price. Notice also that the shift in supply raises output even when market prices are strong enough that the safety net is inoperative. With inelastic demand, this means less gross farm revenue. Farmers receive less market revenue than otherwise because of the safety net every year, but they only receive safety net payment benefits in years when prices are low.

How large are the safety net effects on supply and market-derived farm revenue? Leaving aside the well-known effects among crops, estimates are that current policies (direct payments, insurance subsidies and marketing loans/loan deficiency payments) have expanded 1998-2000 aggregate program crop output from 1.1 to 5.7 percent (see table 1). The aggregate effect may seem modest, but with inelastic demand the expansion of production reduces gross market revenue by \$3 to \$15 billion in the short run. For loan rates, as much as one-third of payments are offset by lower market receipts. Production costs are incurred with expansion of output, so net revenue is offset more than gross revenue. These are rough

Table 1. Estimated Effects of Safety-Net Policies on 1998-2000 Farm Output (as percentage of total) and Potential Effects of Counter-Cyclical Income Support Payments

Policy	Estimated Effect on Production (1.0 = 1 percent)
Direct (AMTA) Payments	0.15 – 0.25
Crop and Revenue Insurance Subsidies	0.28 – 4.10
Loan Rate Payments	0.68 – 1.38
Total	1.11 – 5.73
Possible Counter-Cyclical Support Payments	?? – ??

Sources: Westcott, Paul and C. Edwin Young, "U.S. Farm Program Benefits: Links to Planting Decisions and Agricultural Market," *Agricultural Outlook*, October 2000: pp. 10-13; Tweeten, Luther, "Impacts of Unilateral Liberalization of Farm Programs," Department of Agricultural, Environmental and Development Economics, Ohio State University, October 2000; Gardner, Bruce, "Agricultural Policy: Pre- and Post-FAIR Act Comparisons," Department of Agricultural and Resource Economics, University of Maryland, October 2000; FAPRI, "The 1-2-3 Scenarios: An Analysis of Safety Net Alternatives," Report 7-00, July 2000; and FAPRI, "Preliminary Assessment of Counter-Cyclical Payments Options," November 2000.

calculations, but make a point. It does not take too much production enhancement to reduce the market-derived income of farmers. This is a vicious not virtuous cycle. The lower income then generates calls for more help in the form of income transfers.

The newest proposals for a safety net involve counter-cyclical payments triggered by downturns in market-derived income. Several variants of these proposals are in circulation: with payments depending alternatively on local (county or state) or national income levels, related to single-crop or multiple-crop gross or net revenue, using a fixed base period or a moving average of past revenue levels. The basic idea is that such counter-cyclical payments would insulate farmers from a wide variety of adverse shocks, and lessen the enticement for Congress to act on an ad hoc basis.

Counter-cyclical payments might avoid some of the hazards associated with insurance policies based on individual farm yields, but the effects of these various proposals have not been fully sorted out. A FAPRI study (July 2000, cited above) suggests that the production-inducing effects of new counter-cyclical payments is equivalent to that of traditional loan rates. For a fixed \$10 billion fiscal expenditure, this study with production effects taken into account finds that net farm income rises on average \$7.4 and \$7.8 billion, respectively, under crop-specific counter-cyclical income payments versus higher loan guarantees. Again, about 25 percent of the direct payments are offset by lower market income.

Traditional Market Interventions

Farm bills have been slow to secure reforms for those commodities that receive border protection. These traditional programs offer a rigid type of farm income safety net: a relatively high price guarantee enforced with supply controls. There is a limit to the use of this policy option and it is not a direction in which policies for other crops should revert.

Recent stress on the U.S. sugar program illustrates this point. Until 2000, domestic prices for sugar were maintained above levels of loan rates (and well above world price levels) without crop forfeitures, mostly by squeezing down imports that exceeded the U.S. minimum international market-access commitments under NAFTA and the WTO. In 2000, domestic supply increased relative to demand putting downward pressure on prices, even with imports at the lowest levels the international agreements would permit. In response, a partial plow-down of the sugar-beet crop was announced and USDA took possession of nearly 1 million tons of sugar to prop up prices, showing vividly the net losses implied by the sugar program. More such waste is in the offing if the sugar program is not changed. The United States is committed to access of additional sugar imports from Mexico by 2008 under forward-looking NAFTA provisions designed to eliminate the agricultural trade barriers between the two countries.

An unattractive option for sugar policy is to hold up the level of U.S. prices by maintaining current loan rates and increasing constraints on domestic supply if necessary. Stocks can be accumulated, and if that is not enough crops can be plowed down in the field, or marketing allotments or acreage restrictions can be re-legislated, or paid land diversions can be adopted. These are the types of government storage and supply-control measures that Congress has progressively moved away from for other crops.

A better approach to sugar policy would progressively convert the sugar program to direct payments. This policy change would reduce government entanglement in the sugar market, provide more price flexibility in the short run, and facilitate multilateral international trade policy reform that includes sugar in the long run. As a first move in this direction, Congress could adopt marketing loans that would free up sugar prices on the consumption side, while retaining current price guarantees to producers. A more fully decoupled option is to implement fixed direct payments and lower loan rates. Either step would move sugar policy down the reform path taken for other field crops since the mid 1960s.

New Feedback Mechanisms for Safety Net Design

The current challenge for much of farm policy is how to make further moves toward market orientation attractive while avoiding the worst overshooting effects inherent in unconstrained provision of a safety net based on direct payments. These overshooting effects will not be avoided unless Congress writes some restraint into policy rules. There are suggestions to build co-responsibility of farmers into policy while providing support by linking payments to provision of environmental benefits. Here, I focus on another approach—a safety net that restores an element of free choice to farm decision makers, while offering them some government aid.

A longstanding criticism of farm policy is that the distribution of program payments is primarily to the largest producers and regularly there are calls to limit such payments. These calls for size-related policy targeting have not been well received—recently the Commission on 21st Century Production Agriculture rejects this approach outright. Today's farm policy is not anti-poverty policy as much as it is industrial policy. Yet there is a concept from federal welfare reform, that of setting limits on individual eligibility, that may prove constructive for farm policy design as well.

Instead of targeting farm support with payment limitations, why not limit the number of years any one farmer (regardless of size of operation) can choose to draw on government support, such as AMTA or loan-deficiency payments? The idea is that a farmer would have this federally-provided tool for income smoothing, and could choose when to utilize it, but would not be able to anticipate being forever “on the dole.” Perhaps the limit that a farmer could draw support in any five years of his or her choice over a lifetime of farming would be appropriate. An older farmer who had exercised this option and was ready

to retire could be bought out at a premium by a new entrant to farming since the new person would start off with renewed support eligibility.

If per-farmer eligibility constraints prove too difficult to apply, then a safety net option could be tied to base acres instead of persons. An advantage of this latter approach would be that the value of the safety net entitlement built into the price of land would decline as the support option was exercised. This would make it easier for a new farmer to begin operations with an asset base from which the government support value had been depreciated over time. Alternatively, a land owner could choose not to exercise the safety net option, and receive compensation for that choice when the land changed hands. Over a generation or two, farm asset values would come to rest on market-based determinants.

These suggestions for a new approach to a farm safety net are preliminary and need to be thought through carefully along with others. Some new mechanisms are needed to provide feedback constraints to safety net policy based on cash payments.

Conclusion

I have highlighted several cautionary points to guide provision of a farm income safety net. The long slow policy evolution for most crops away from supply-control market interventions should not be reversed. Yet post-FAIR farm policy is vulnerable to overshooting. Too much support is likely to be offered and policies that are adopted will elicit more output than markets otherwise call forth. With inelastic demand in the short run, this creates a policy-induced reduction of market-derived farm revenue, offsetting some of the safety net payments and leading to additional calls for income support. New mechanisms need to be investigated to put some bounds on eligibility for farm safety net programs. There is also need for reform of remaining interventions that rely on supply controls to raise market prices, such as for sugar. This program proved costly in 2000 and runs counter to U.S. interest in an open global trading system.

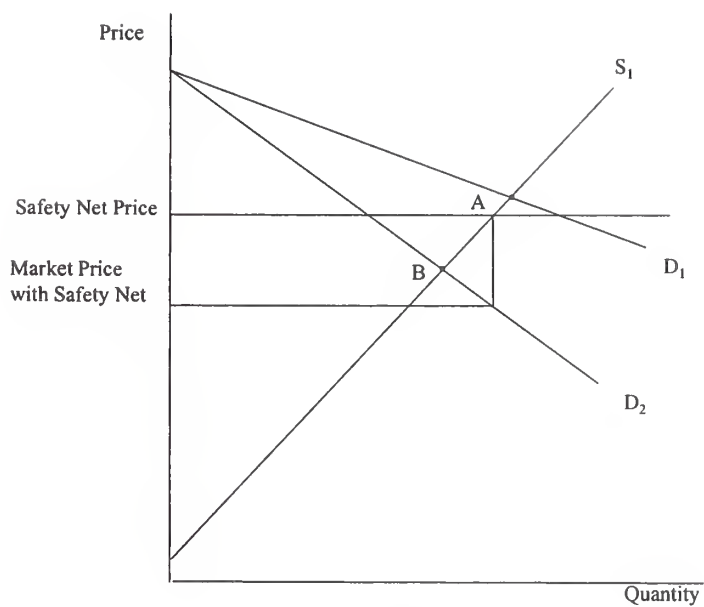


Figure 1. A Safety Net at Work

With a safety net in place, farmers are spared the full effects of a collapse of demand from D_1 to D_2 . Instead of the market equilibrium moving from A to B, farmers receive the “Safety Net Price” while consumers pay the “Market Price with Safety Net.”

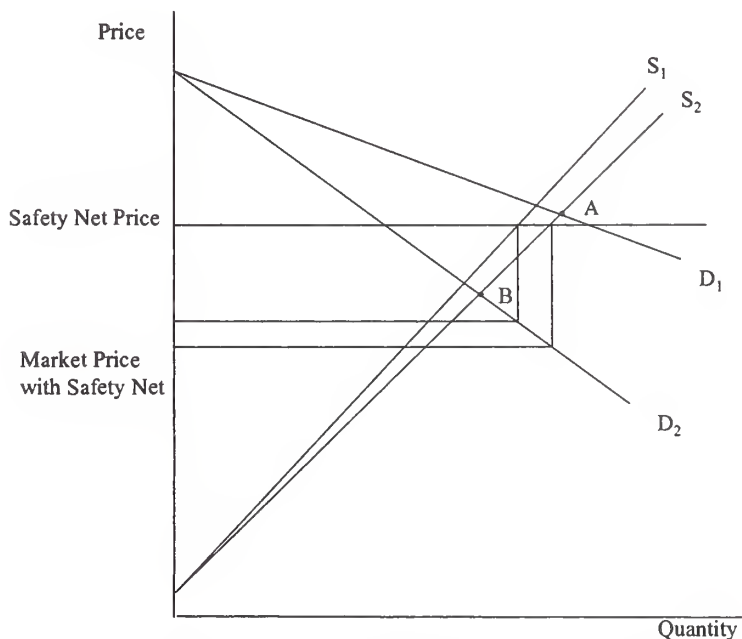


Figure 2. Secondary Effects from Provision of a Safety Net

By eliminating the risk of receiving the lowest prices, a safety net induces farmers to shift supply from S_1 to S_2 . This drives the price consumers pay down further when the safety net is operative. The supply shift also causes a lower market price at A when the safety net is not operative.

WHAT SHOULD BE THE ROLE OF RESOURCE STEWARDSHIP
IN FUTURE FARM POLICY?

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I am pleased to be asked to suggest what role natural resource stewardship should play in future farm policy. I think it would be useful at the outset to reflect on the historic role resource stewardship has played in farm policy and on the role natural resource stewardship is playing today before we consider what the future role for stewardship might be.

Historic Role of Resource Stewardship

Natural resource stewardship first entered farm policy in the 1930s. At the time, there were crises on the farm and on the land. The role of stewardship then was largely to serve agriculture by developing and managing soil and water resources as a means of enhancing agricultural production and rural development. Conservationists and some policymakers, of course, recognized the larger social benefits of conservation — flood prevention, pollution prevention, and habitat enhancement — at the outset of what became the conservation movement of the 1930s. But those benefits were considered ancillary to enhancing and sustaining agricultural production.

Soil and water conservation proved spectacularly successful in fulfilling its historic role. Consider that in the 1930s, two national assessments reported that:

- Soil erosion had permanently destroyed nearly 60 million acres — an area equivalent to 16 percent of current cropland.
- Another 255 million acres — an area equivalent to 68 percent of current cropland — had lost more than 75 percent of its topsoil.
- Only 160 million acres — about 42 percent of land we are currently cropping — was considered capable of being safely cropped given conservation and farming know-how of the day.

Yet, in 1997 the National Resources Inventory reported that about 270 million acres — 72 percent of cropland — was being safely cultivated with no harm to productivity. Soil erosion of the magnitude that was causing the severe damage reported in the 1930s was occurring on less than 15 percent of cropland in 1997.

Application of conservation practices thus has close to doubled the area of cropland that can be farmed without damage to its productivity. Natural resource stewardship has contributed in a major way to the development of the highly productive agricultural enterprise we now enjoy. Moreover, conservation has sustained that enterprise without the widespread and persistent wastage and degradation of soil and water resources that were common historically and that now threaten many areas around the world.

I think it is safe to say that we simply could not have achieved the miracles modern agriculture has wrought, if conservation had not progressed hand-in-hand with agricultural technology.

That historic agricultural and environmental achievement was accomplished through a unique federal-local initiative that made science-based technical services and financial aid available to producers, communities, and units of government in

nearly every county in this country. This victory over widespread waste and degradation of soil and water resources is among the most significant, although now largely overlooked, accomplishments of modern conservation. In the process, we created a scientific and technical services infrastructure for conservation that quite literally is the envy of most nations.

Advent of Environmentalism

The environmental movement began in the late 1960s in the U.S., but environmentalism did not really enter farm policy and politics until 1985. The Food Security Act of 1985 contained three major innovations in the relationship between natural resource stewardship and farm policy:

- Conservation Compliance/Sodbuster.
- Swampbuster.
- Conservation Reserve Program.

In the case of Conservation Compliance/Sodbuster and the Conservation Reserve Program (CRP) the enemy was the same — soil erosion and land degradation. The reason to fight the enemy was different, however. In 1985, we worried more about sediment in our streams than about soil productivity. The off-site environmental cost of erosion rather than the on-site damage to agricultural production was our rationale for action.

Swampbuster was the clearest indication of the changing role of natural resource stewardship in farm policy. Farm subsidies were now denied for doing what we had once used conservation programs to encourage. Five years later, in the 1990 farm bill, we would authorize a program to begin restoring wetlands.

Today: Policy Better But The Reach of That Policy Is Limited.

Today, we are still working within the basic framework established in the Food Security Act of 1985. Conservation has not experienced the same dramatic policy change experienced in other areas of farm policy. Instead, the evolution of conservation's role in agricultural policy continued in small but important ways.

The movement away from natural resource development toward environment protection proceeded unchecked — symbolized by the transition from the Agricultural Conservation Program, to the Water Quality Incentives Program to, finally, the Environmental Quality Incentives Program.

The number and complexity of stewardship programs has multiplied. Wetland restoration, water quality, air quality, wildlife habitat, endangered species, and farmland preservation have been added to the conservationist's traditional concerns about soil and water conservation. The number of conservation programs authorized by Congress has likewise multiplied, along with natural resource and environmental issues. In 1996, seven new conservation programs were authorized at the same time that a concerted effort was made consolidate four existing programs into the Environmental Quality Incentives Program (EQIP).

Unfortunately, conservation funding has not kept pace with the multiplication of problems or programs. Conservation funding doubled (in constant dollars) after the Food Security Act of 1985, but nearly all of that increase occurred in one program — the CRP. Conservation funding since 1990 has been essentially flat — growing at less than one percent per year — even as the number of new programs multiplied. Financial assistance to help producers manage land producing crops and livestock actually has declined by 38 percent in real terms since 1985. Most troubling is disinvestment in scientific and technical services — the foundation of natural resource stewardship and conservation efforts. Funding has been flat, at best, in real terms, while scientists and technical staff devoted to conservation have

declined by 16 percent in the Natural Resource Conservation Service and 6 percent in the Agricultural Research Service.

Conservation policy has improved, but the ability of that policy to reach farmers, ranchers, and our agricultural land has shrunk. Ironically, most of our conservation financial assistance dollars are now spent to stop farming, rather than to facilitate farming in environmentally sound ways. In 1985, this country spent 97 cents of every conservation financial assistance dollar to enhance the management of lands producing crops and livestock. Today, only 15 cents of every conservation financial assistance dollar is spent for that purpose. The remaining 85 percent is spent to take land out of production. We are in danger of confirming what our harshest critics say — the only way to make farming environmentally sound is to stop farming.

Conservation in Future Farm Policy

It seems to me we must ask ourselves two questions about what role natural resource stewardship and conservation should play in future farm policy.

- What do we want from conservation?
- What do we want from agriculture?

I'd like to discuss each question separately, although they are closely connected.

What do we want from conservation?

It seems to me what we want, at a minimum, from conservation in farm policy is what we have always wanted — to facilitate if not enhance the growth and development of the agricultural enterprise. But conservation will play that role in a very different way than it has historically. Instead of developing soil and water resources as inputs to agricultural production, the primary challenge will be to develop agricultural production and conservation systems that protect the environment.

Environmental performance will become a key determinant of commercial viability for agricultural producers. For producers operating animal feeding operations or irrigating cropland or pasture, that day is already here. Consider the following:

- More than half of all the land in the U.S. is managed as cropland, pasture, or rangeland.
- Nearly 90 percent of all precipitation that falls in the U.S. falls on privately owned agricultural or forestland before it runs into our streams, lakes, or underground water.
- More than 60 percent of agricultural production, by value, is produced in metropolitan counties or counties adjacent to metropolitan counties, which suggests to me that that day is coming for most of agriculture.

It should not surprise us that the environmental agenda looms large in agriculture's future. In most of the U.S., agriculture is the environment, and that environment is increasingly shared with neighbors who care more about their quality of life than their supply of food or even the price of their food. Agriculture cannot escape the consequences of its environmental effects anymore than agriculture could escape the effects of soil and land degradation in the 1930s. We faced the first challenge and won. There is no reason why we can't face the environmental challenge in the same way.

Fortunately, we have most of tools — both policy and programs — in place that will allow conservation to enhance the environmental, and therefore, the commercial viability of agriculture. But we cannot simply abandon conservation's more traditional function to take on this new challenge. Erosion is still a problem on 108 million acres or 29 percent of our cropland and 50 million of those acres are

not considered highly erodible cropland. Progress on controlling erosion has stalled since 1995, an indication of the shrinking reach of conservation. We have to maintain the gains we have made since the 1930s while we devote energy and resources to the environment. It can be done, but only if we: (1) dramatically expand the reach of our existing conservation programs and policy, (2) ensure commodity and risk management programs do not exacerbate environmental problems, and (3) elevate the importance of conservation and environment in agricultural policy and in the U.S. Department of Agriculture.

The Soil and Water Conservation Society recently held a series of regional workshops at which we asked participants from the agricultural, water resource, and fish and wildlife communities to develop recommendations for reform of USDA conservation policy and programs. Participants recommended expanding the reach of existing USDA conservation programs through a combination of increased funding and programmatic reform, with increased funding being far and away the most important concern. Specifically, our workshop participants recommended:

- Funding conservation technical services and financial assistance programs at about \$ 5 billion annually — about double current spending.
- Enhancing the quality and quantity of technical services available from both public and private sectors.
- Making sure conservation programs work for all producers, in all regions of the country, by eliminating the current bias toward producers of row crops and by providing more flexibility at the state level to tailor programs to state and local needs.
- Striking a better balance between land management and land retirement by increasing technical and financial support for managing lands producing crops and livestock in environmentally sound ways.
- Simplifying the application and conservation planning process for participating in USDA conservation programs.
- Providing regulatory assurance for USDA conservation program participants by unifying planning and technical standards among local, state, and federal agencies; providing one-stop shopping for landowners and land managers; and creating "safe harbor" options for producers.

Participants also wanted to make sure that the structure of farm commodity and risk management programs did not exacerbate conservation and environmental problems by encouraging producers to break out fragile land, keep risky land in production, or intensify production of subsidized crops that are particularly risky for the environment. Participants disagreed about the extent to which commodity and risk management programs currently encourage producers to use and manage land in environmentally risky ways, and therefore disagreed over the need to reform such programs. There was general agreement, however, that current conservation compliance and swampbuster provisions should be maintained, and extended to all farm support programs, including crop insurance. There was also strong support for expanding the soil conservation provisions to all cropland, not just highly erodible cropland.

All of these measures could be taken within the context of existing programs and within the framework of the conservation title of the farm bill. The funding increase recommended is about the same as that experienced following the Food Security Act of 1985. Policy change of this scope, in other words, appears quite doable but only if conservation and the environment is accorded a much higher priority within farm policy and only if USDA both recognizes and exercises its role as the premier federal agency for the conservation and environmental management of 75 percent of the U.S. landscape.

What do we want from farm policy?

The more difficult and fundamental question is to decide what we want from farm policy itself. In my view, what we want from farm policy should be based on what we as a nation want from agriculture.

To date, it seems, we have wanted agriculture, first and foremost, to produce cheap, abundant, and safe supplies of food and fiber. And, it seems we have largely gotten what we have asked for. The productivity of the modern agricultural enterprise is a marvel. In fact, the productive capacity of American agriculture is so great that almost 70 percent of the value of agricultural production is produced by 8 percent of producers — about 175,000 farmers — operating 32 percent of farm acres (1999 Agricultural Resources Management Study, USDA-ERS). If all we want from agriculture in the future is cheap, abundant, and safe supplies of food and fiber, then it appears we can do with fewer producers and far fewer acres in production.

The implications of these figures and such a conclusion for farm policy are staggering. They clearly call into question the purposes, mechanisms, and priorities of farm policy. The policy turmoil we are experiencing is exacerbated by the reality of both the reach and effect of current farm subsidy programs. Even as government subsidies have tripled since 1997 — reaching \$28 billion last year — we have learned that:

- Only 36 percent of all farms received government payments according to the 1997 Census of Agriculture (USDA-ERS Agricultural Outlook, October 2000).
- The major field crops that receive nearly 100 percent of those government subsidies accounted for only 20 percent of total cash receipts farm farming in 2000 (USDA-ERS Agricultural Outlook, October 2000).
- Only 37 percent of farm subsidies payments went to farmers in counties where those payments would be expected to play a significant role in the local economy (USDA-ERS Agricultural Outlook, October 2000).

Given these facts, it is not surprising that current and historic approaches to farm policy are in question.

If, in fact, it is time for a fundamental rethinking of farm policy, then I suggest that natural resource stewardship should be among the most important components of a new farm policy.

Farmers and ranchers control how most of our land is used and managed. They also control who has access to that land. They are, literally, the most important soil, water, fish, wildlife, and recreational managers in the U.S. That to me is what makes farming and ranching truly unique — and truly deserving of special attention in federal policy. I would argue that it is time to make conservation and natural resource stewardship a centerpiece of farm policy rather than an afterthought. I would argue that conservation and stewardship, as a centerpiece of farm policy, has unique advantages for both the public and producers.

For the public, such a policy change would create the opportunity to go beyond pollution prevention and damage control to widespread enhancement of our environment. What if we were to harness the management skills of America's farmers and ranchers to become primary agents of enhancing the environment? Just as the land use and management decisions made by producers can impair the environment, those decisions can create fish and wildlife habitat, produce clean and abundant supplies of water, protect against the risks of climate change, and create recreational opportunities. Conservation at the center of farm policy would take us beyond simply helping (or requiring) farmers and ranchers to prevent environmental damage to rewarding farmers and ranchers for enhancing the environment — for using their labor and capital to provide environmental goods and services.

For agriculture, such a policy change would create the opportunity to use conservation to help keep people on the land and to escape some of the contradictions created by current farm policy. The land and its management drive conservation rather than the amount or kind of commodities produced. That means all farmers and ranchers, producing all kinds of commodities, in all regions of the country could participate in environmental enhancement. Conservation could and should reach those 92 percent of farms operating 68 percent of the acres, but producing only 31 percent of the value of food and fiber. Though not big players in the commodity market or in international trade, those producers are, or could be, very big players in the conservation market. Producers in Canada, Mexico, Argentina, Brazil, and France can compete in corn, soybean, wheat, and beef markets; they cannot compete with our farmers in producing clean water or fish and wildlife habitat. The environment is a niche market, but one in which every farmer and rancher has a niche.

Perhaps most importantly, bringing conservation to the center of farm policy would take us a long way toward creating an agricultural policy out of what increasingly appears to be a limited and contradictory farm policy. It would provide more options for policy makers and producers, instead of attempting to fit an increasingly diverse agricultural sector into a one-size-fits-all subsidy program. We could diversify agricultural policy to reflect the needs and unique circumstances of different farming and ranching operations. We could design a policy that works for those handful of producers who dominate commodity markets and trade, and we could design a policy that works for all those other producers in whose hands we entrust the management and care of most of our land, water, and wildlife. We could, create an agricultural policy that is truly open to all of agriculture and built on a solid foundation — the unique status and responsibility of farmers and ranchers as the caretakers of our land, water, and wildlife.

To achieve those objectives, we would have to step outside the current framework of conservation and farm policy and create something new. On the conservation side, we would have to create the capacity to deliver technical services and financial aid to producers on a scale not seen in this country since the 1930s. At our workshops, participants wanted to create a broad-based stewardship program that would:

- Reward good actors — producers who have been investing in and implementing conservation systems often without any governmental assistance or financial compensation.
- Provide technical services and financial aid to maintain existing conservation systems and habitat as well as to implement new systems or to restore habitat.
- Scale financial rewards to reflect the level of conservation effort and environmental goods and services produced.
- Make all agricultural land and all agricultural producers eligible.
- Emphasize keeping people on the land by fitting conservation into working farms and ranches rather than by restricting the use of agricultural land.
- Address conservation opportunities comprehensively on farms and ranches.
- Create one-stop-shopping through a single conservation planning process, a single application and administrative process, and regulatory assurance.

Making this vision real will require major investments in our technical services infrastructure — public and private — and creating within farm policy a stewardship program that is funded generously enough that it is truly open to all agricultural producers who want to make conservation and resource stewardship and fundamental part of their operations. It will require moving conservation to the center of farm policy with funding and attention equivalent to that provided commodity and risk management policy.

FARM INCOME AND FINANCE: THE IMPORTANCE OF GOVERNMENT PAYMENTS

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Government payments attained a new high of \$22.1 billion in 2000, boosted by \$8.9 billion in emergency assistance and \$6.4 billion in loan deficiency payments. In each of the last three years, the U.S. government has reacted to low commodity prices and potential economic adversity with legislation to increase financial assistance to farmers. Payments forthcoming as part of emergency legislation coupled with the first extensive use of the Loan Deficiency Payment Program has helped to maintain farm income and temper financial hardship for many producers. Since 1996, direct government payments have totaled nearly \$70 billion. Emergency assistance originating from special legislation comprised \$20 billion of total government payments during 1996-2000 and is forecast to be \$3.6 billion in 2001. Higher crop prices in 2001 will result in nearly \$2 billion less in Loan Deficiency Payments, which were a significant component of total payments in 1999 and 2000. Production flexibility contract payments, established in the 1996 Farm Act, were mandated to trend downward according to a declining fixed allocation budgeted for each successive year of the program. In 2001, production flexibility contract payments are forecast to be \$800 million lower than in 2000 (figure1).

Farm Income Forecast to Decline with Moderate Government Payments

Net farm income is forecast at \$41.3 billion in 2001. This would be \$4.1 billion less than 2000's \$45.4 billion and \$4 billion below the 1990-2000 average of \$45.3 billion (figure2). An anticipated decrease in government payments is the main reason for a decline in the farm income forecast, as the value of commodity production is actually on an upward trend. Projected at \$14.1 billion, government payments will be approximately \$8 billion less in 2001 than in the previous year.

The total value of crop production (final crop output) for 2001 is forecast at \$101 billion. The value of crop production rose by \$3.2 billion in 2000 and is projected to follow that with a larger gain of \$4.7 billion in 2001. This is noteworthy because by 1999, the value of crop production had fallen by \$22.4 billion from its record \$116 billion in 1996, primarily as a consequence of falling market prices for many farm commodities. Receipts are expected to be up about \$3.3 billion for feed grains, cotton, oil crops, and tobacco.

With increases in demand maintaining farm prices and red meat and poultry production anticipated to reach a record high in 2001, livestock receipts are expected to increase slightly from 2000's record level of \$99.5 billion. Prices for milk and dairy products should begin to recover in 2001 as the market adjusts to the large production levels of the last two years. Poor forage conditions over the last several years have held down beef cattle inventories despite improving prices. Receipts for cattle and calves are forecast to decline slightly in 2001 on the heels of a \$3.7-billion increase from 1999 to 2000. Gains for cattle and calves in 2000 helped to increase the value of livestock production (final animal output) by \$4.1 billion even though the value of dairy production declined by \$2.5 billion. After an almost 7 percent production growth in 1999, growth in broiler production slowed by half in 2000, dropping well below the 20 year

average growth rate of 5 percent. Broiler production growth in 2001 is expected to be only slightly larger than 2000.

Farming Will Cost More in 2001

Total production expenses incurred in the production of agricultural commodities are forecast to rise \$1 billion in 2001, topping \$200 billion for the first time. Energy costs are projected to rise slightly in 2001. Fuel expenses are expected to be similar to 2000 as recent price increases are expected to fall off towards the end of the calendar year. In 2000, expenditures for fuels increased by \$2.3 billion, which was the highest year-to-year jump since 1980, when they rose by almost the exact same dollar amount. (The highest percentage year-to-year jump, however, occurred in 1974, when fuel costs soared 43 percent.)

In 2001, slightly higher feed grain prices and a combination of the continuing contraction of the cattle inventory and a modest expansion in the poultry sector will leave feed expenses at the same level as the last 2 years. Livestock expenses are forecast to fall nearly 6 percent due to reductions in cattle herd sizes. Seed expenses are down slightly as prices remain stable or fall and forecast acres planted declines. Even though planted acreage is expected to fall, fertilizer expenses should increase by 4 percent due to the impact of significantly higher natural gas prices on production costs for nitrogen fertilizer. Although petroleum is one of the main inputs in pesticide products, pesticide expenses are forecast up less than 2 percent because other production factors account for a larger share of pesticide costs. Repair and maintenance of capital items is expected to rise slightly as farmers choose to extend the life of capital inputs rather than invest in new machinery and equipment. Marketing, storage, and transportation expenses will be up more than 5 percent due to fuel costs. Machine hire and custom work expenses will rise only a little because of lower planted acreage offsetting higher fuel costs.

Total farm production expenses equaled 89 percent of final agricultural sector output in both 1999 and 2000. In addition to the value of crop and animal output, final agricultural sector output includes income from forest products, machine hire and custom work, other farm related income, and the imputed rental value of farm dwellings. Direct government payments are not included in final agricultural sector output. This ratio, which reflects the proportion of final sector output that is absorbed by production expenses is expected to fall to 88 percent in 2001 based on the modest increases in expenses being offset by gains in marketing receipts (figure 3). During most of the 1990's the ratio of total farm production expenses to final agricultural sector output ranged from 80 to 85 percent. The relatively high values of this ratio since 1998 reflects the impact of historically low crop prices on the value of sector output and recent increases in some expense items.

Using this framework demonstrates how government payments help to maintain operating margins. Since 1980, government payments largest percentage contribution to margins occurred in 1987 at 8.75 percent followed closely by 2000's estimate of 8.05 percent. However, the ratio of total farm production expenses to total agricultural sector output plus direct government payments did not reach its lowest value during these two years. This occurred in 1989, 1992, and in 1996 when the ratio was 76 percent. With the exception of 1995 the ratio value calculated to include government payments ranged from 75 percent to 80 percent during 1986 to 1997. Since 1998 the ratio value including government payments has been about 81 percent and is expected to rise to 83 percent in 2001.

Not All Farms Receive Government Payments

According to USDA's 1999 Agricultural Resource Management Study (ARMS), 41.6 percent of all farms received government payments. This was up from 1998 when 36 percent of farms reported receiving

payments. Government payment farms received on average \$16,751 in payments which contributed 13 percent of gross cash income. This was up from 1998 when farms reported receiving \$11,864 in payments. The most significant change was the increase in the number of farms receiving loan deficiency payments and the increase in the size of these payments. Farms receiving no government payments in 1999 averaged \$44,210 in gross cash income, less than half that of farms receiving payments.

The composition of government payments received by farms in 1999 varies across the farm typology (figure 4). Average loan deficiency payments at \$5,496 were slightly larger than average production flexibility contract payments at \$5,303; and combined they comprised about 64 percent of total government payments. Across the typology, the level of flexibility contract payments was about the same as the level of loan deficiency payments. Disaster program payments contributed 22 percent while Conservation Reserve Program (CRP) payments contributed 8 percent of the total. Larger farms received more of their government payments from production flexibility contract payments and loan deficiency programs, while smaller farms received more of their payments from the CRP. For retirement small family farms, more than half of total government payments resulted from the CRP.

About 80 percent of farms categorized as occupation farming/high sales and large family farms received government payments (figure 5). These two groups combined received 46.1 percent of total government payments to farm operators in 1999. Very large family farms received the highest average government payments at \$85,208. However, this payment represented only 8 percent of gross cash income. Limited-resources family farms received the smallest average government payment (\$3,924), but payments were relatively important as a source of income (27 percent of gross cash income). Looking at the distribution of government payments by farm typology, very large family farms represented only 4 percent of farms receiving government payments, but received 23 percent of total government payments. A similar percentage of farms receiving payments were categorized as limited-resource (4 percent), but they accounted for less than one percent of total government payments. The 56 percent of farms receiving government payments that were residential/lifestyle and farming occupation/lower sales small family farms received only 23 percent of total government payments.

Since crop program provisions and market conditions determine the size and the distribution of a large proportion of government payments, it follows that the regional distribution should be consistent with cropping patterns of program crops. The share of farms receiving government payments was significantly higher in both the Heartland and Northern Great Plains regions (figure 6). Payment farms in the Fruitful Rim and Mississippi Portal regions received the highest average government payments. For Mississippi Portal and Northern Great Plains government payment farms, payments contributed about 20 percent of average gross cash income. A third of the farms receiving government payments are in the Heartland region. A little more than a third of total government payments went to farms in that region. Government payment farms in the Northern Crescent, Eastern Uplands, and Southern Seaboard received less than their proportionate share of payments. The 3.9 percent of farms receiving government payments that were Mississippi Portal farms received 6.7 percent of total payments. This result is consistent with high production of cotton and rice in the Mississippi Portal region.

Government Payments Improve Financial Outcomes, but Do Not Guarantee Success

Because the distribution of payments is heavily influenced by historical production patterns for the major program commodities it is not evident that there is a direct link between the receipt of payments and financial outcome. It is not the case that financial problems are eliminated for all farms that receive payments nor is it true that farms that do not receive payments are immune to financial difficulties. Again, the ARMS data can shed further light on these questions. For illustration, we use information on the rate of return on assets (ROA) and off-farm earnings to define an unfavorable financial outcome. If a

farm has a ROA of less than -5 percent or if a farm family earns less than \$20,000 in off-farm income and the farm business has a ROA between -5 and 5 percent we assume this would constitute an unfavorable financial outcome. Under this definition, 44 percent of all farms were classified as having an unfavorable financial outcome in 1999. Although payments may have prevented even greater financial hardship, 42 percent of farms that received payments ended 1999 with an unfavorable financial outcome. Of the more than 1.2 million farms that did not receive government payments, 45 percent had an unfavorable financial outcome.

The relationship between government payments and financial outcome varied across the different resource regions. In the Northern Great Plains and Mississippi Portal regions half of the farms that received payments in 1999 ended the year with a favorable financial situation (figure 7). The Fruitful Rim and Basin and Range regions had the highest percentage of farms with an unfavorable outcome that did not receive payments, at 41 percent and 37 percent, respectively. There were only two regions (Heartland and Northern Great Plains) where the number of financially sound farms receiving payments exceed the number of financially sound farms that did not receive payments in 1999.

Government Payments Important to Stability of Agriculture's Balance Sheet

The value of farm real estate, the largest component of farm assets, is expected to increase about 1 percent nationwide in 2001. While the farm income analysis presented here does not assume future legislation, strength in recent farm real estate markets suggests that farmers do not believe that their incomes will decline precipitously in the future, largely as a result of emergency assistance that has been provided to assist the sector. Bankers in the Chicago Federal Reserve District reported that, despite a slowdown in the rate of increase in the last two quarters, land values in the district rose 7 percent in the year ended October 1, 2000. Such gains do not suggest that several years of relatively low commodity prices have made owners of farm assets pessimistic about the long-term profitability of farming.

Farm business debt is projected to rise 1.2 percent in 2001, following a 2.4-percent increase in 2000. Anecdotal evidence suggests that farmers are becoming more restrained in taking on new debt, while lenders are more conservative in extending credit. Farm debt has continued to rise, with additional increases projected in 2001, despite this financial conservatism. Farm business equity was unchanged in 2000, as farm assets and debt rose in roughly equal amounts. In 2001, equity is projected to rise about 1 percent, as asset values increase relatively more than debt. The debt-to-asset ratio is projected to be 16.1 percent in both 2000 and 2001.

Government payments and farm asset values

Government payments not only contribute to farm income, but also affect both asset and debt components of the farm balance sheet. The value of agricultural land depends largely on its expected future earnings, and a rise in available cash income can impact the overall amount and composition of debt. Payments are generally attached to the land, and accrue primarily to landowners. Since payments contribute to farm incomes, they support farmland real estate values to the extent that the additional income is capitalized into the value of the land. Payments also provide funds to facilitate the purchase of machinery, equipment, livestock, and other farm production assets, reducing the need for debt financing of the purchase of capital assets. Government payments further impact farm debt, since, depending on the timing of receipt of payments, farmers may require less credit to meet their seasonal production financing needs. More importantly, the generally counter-cyclical nature of government payments tend to stabilize income, minimizing the impact of catastrophic market losses, and reducing the risk faced by both farm

operators and the lenders providing them credit. In some instances the additional funds from government payments can be used to pay down or eliminate existing debt commitments.

Farm real estate accounts for more than 75 percent of the value of all farm business assets and its value is primarily based on the income it generates. Its current value reflects the discounted net present value of the expected future cash income flows that can be attributed to land, including those future cash flows that accrue to nonoperator landowners. Since net farm income and net cash income measure returns to farm operators and contractors, net rent to nonoperator landlords should be included as a part of the future stream of income when determining the appropriate income measure to use when considering returns to land. Nonoperator landlords own about 45 percent of all farmland and in some circumstances are eligible to receive farm program payments. In 2000, it is estimated that nonoperator landlords received about 12 percent of LDP's and about 15 percent of all other direct government payments.

Net farm income (NFI) includes all income and expenses, cash and noncash, associated with the farm business operators and contractors. Net cash income (NCI) includes only cash income and expense items of farm operators and contractors, and is a better measure of the annual cash flow for purposes of net present value analysis. In computation of NCI, net rent to nonoperator landlords (NOLL), which includes the landlords share of Government payments, is deducted as a farm operating expense. A more accurate measure of income against which to measure government payments would be obtained by adding net rent to nonoperator landlords to net cash income (figure 8). Government payments share of 2000 income was 39 percent of NCI and less than 31 percent of NCI + NOLL (figure 9).

The role of government payment in supporting farmland values can be estimated using a simple income capitalization approach. Assuming that all income (whether from market sales or government payments) is capitalized into land values, a capitalization rate can be determined that rate reflects the net present value of anticipated future cash flows to farming. In the approach presented here, it is further assumed that current market land values reflect that capitalization rate, and the same capitalization rate would apply in the absence of government payments. The capitalization rate is computed by dividing the current year's net income (NCI + NOLL) by the land value reported in that year (figure 10). This simple model is based on assumptions that should produce the largest "reasonable" contribution of government payments to land values, and, therefore, should produce the projected lower limit on land values in the absence of government payments.

Once the capitalization rate has been determined, it can be applied to the annual net income, excluding government payments, and a new farmland value can be computed that would exist if its value depended solely on its earnings from market sales (figure 11). Application of this procedure suggests that farmland values, in the absence of government payments, would have been about 4 percent lower during 1972-1981 and almost 19 percent lower during 1982-1989. This disparity decreased to about 13 percent during 1990-1997, and could be as much as 25 percent lower during 1999-2001.

Government payments also contribute to the cash farm operators have available to purchase machinery and meet annual production expenses. In the farm sector balance sheet, the value of machinery and motor vehicles is expected to rise modestly in 2000 and 2001, following a 1.3-percent decline in 1999. The Equipment Manufacturers Institute reported unit sales of all tractors increased by 9.1 percent in 2000, while unit combine sales rose 4.1 percent. This may seem to signify a resurgence of investment in farm machinery, but a closer look indicates that smaller tractors have accounted for the gains in tractor sales. Unit sales of large tractors (over 100 hp) declined slightly in 2000, and were almost 35 percent lower than their 1997 level (figure 12). Despite rising in 2000, 45 percent fewer combines were sold than in 1998. While new machinery purchases would have likely been lower in the absence of government payments, this suggests that farmers are being rather conservative in using these funds to purchase new equipment.

Farmers replacing machinery are choosing to do so with used equipment as evidenced by the lively market for well-maintained older tractors and combines at recent auctions throughout the Midwest.

Government payments help farmers meet debt repayment obligations

Debt management is crucial during periods of potentially decreasing farm incomes. Net cash income, which measures the amount of funds available to meet expenses as they come due during the year, is forecast at \$50.7 billion for 2001. This represents a \$5.7 billion decline from \$56.4 billion in 2000 and would be \$4.1 billion below the 1990-2000 average of \$54.8 billion. This reduction in farm operator income translates into a rise in difficulty in meeting debt service obligations in 2001. Debt repayment capacity utilization (DRCU), a measure comparing farmers' actual debt levels with the amount of debt they could repay from current annual income, suggests that farmers are placing greater reliance on available credit lines. DRCU is expected to rise from less than 60 percent in 2000 to almost 65 percent in 2001, its highest level since 1985 (figure 13). The rise in DRCU suggests that some farmers may have a more difficult time meeting interest and principal payments on their outstanding debt in 2001.

Government payments have provided many farmers with the resources to meet repayment obligations that could have otherwise presented severe cash flow problems. If net cash income had been reduced by farm operators' share of emergency assistance payments in 1998-2001, DRCU would have measured about 66 percent in both 1999 and 2000, and would rise further to almost 68 percent in 2001. If removal of all government payments reduced net cash income by a similar amount, DRCU would have reached about 80 percent in both 1999 and 2000, and would remain above 79 percent in 2001.

Longer Term Perspective

Government payments, which will be an important source of farm income in 2001, are projected to be considerably less in 2002 and beyond in USDA's current baseline. Total government payments, now forecast at \$14.1 billion for 2001, are projected fall to \$7 billion in 2002 and remain below \$7 billion throughout the baseline period. Under existing farm legislation, government payments should be expected to decline. Production flexibility payments, established in the 1996 Farm Act, were mandated to trend downward according to a declining fixed allocation budgeted for each successive year of the program. Production flexibility contract payments are assumed to continue at the 2002 level through the remainder of the baseline. Loan deficiency payments, which are intended to be counter-cyclical with commodity prices, also will have reduced importance as a component of government assistance. Because the CCC loan rates for many commodities are based upon a moving average of market prices, the lower prices experienced in recent years will reduce the applicable loan rate in 2002 and beyond. The combination of lower loan rates and increasing market prices results in a smaller amount of the crop that will be eligible for benefits and a smaller payment per each unit of the commodity produced. As a result of modestly higher prices for several commodities and the lower loan rates offered, loan deficiency payments are expected to fall by nearly \$3 billion from 2001 to 2002.

The impact of lower government payments on farm income and the ability to meet debt obligations is hardest felt during 2002-2003. Net cash income is expected to decline to \$46 billion, as market receipts do not compensate for the decline in government payments (figure 14). As cash receipts from farm commodities continue to expand on the strength of exports, government payments will become a less important component of farm income through the rest of the decade. By the end of the decade government payments represent only 8 percent of the projected \$65 billion net cash income compared with 2000's estimate of 32 percent.

Figure 1
Calendar Year Direct Government Payments, 1990-2001f

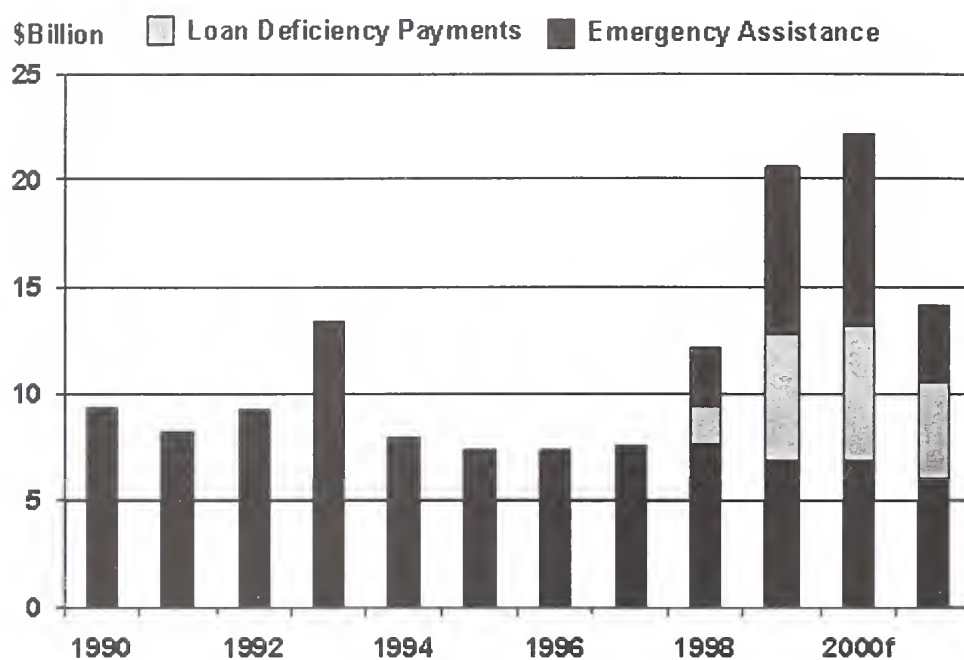


Figure 2
Farm Sector Net Farm Income, 1980-2001f

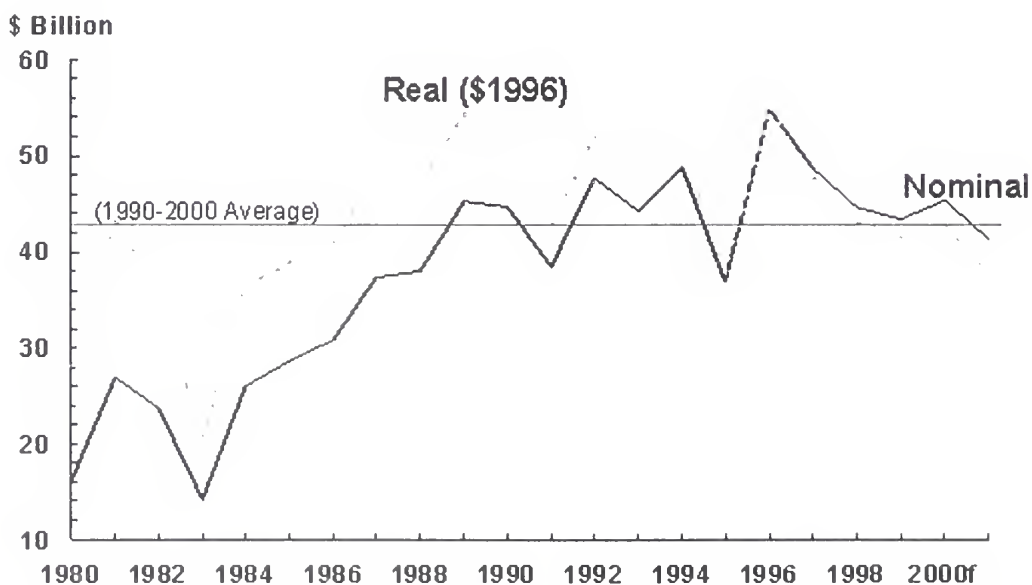


Figure 3

Total Production Expenses in Relation to Value of Agricultural Sector Output, 1980-2001f

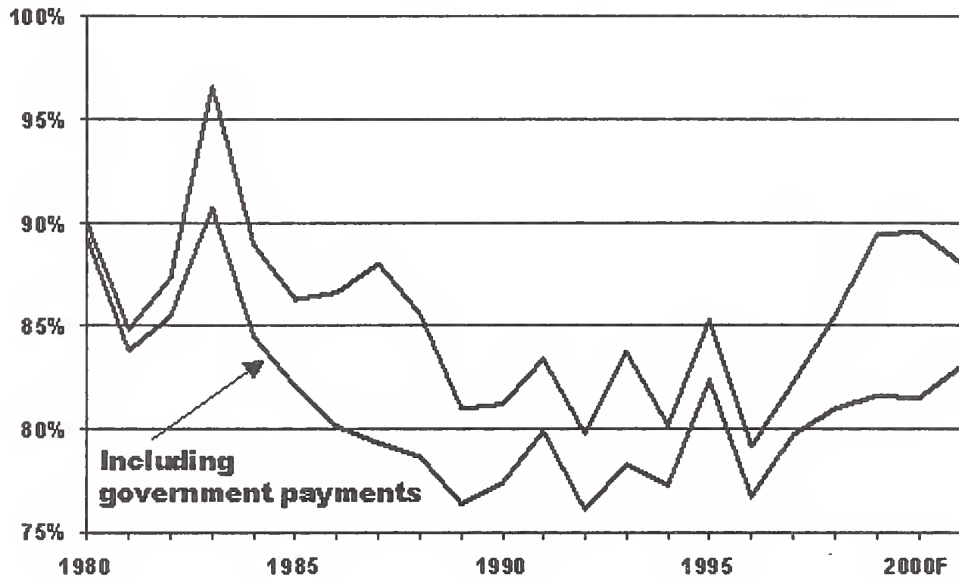


Figure 4

Composition of government payments and mean government payments for farms receiving payments, 1999

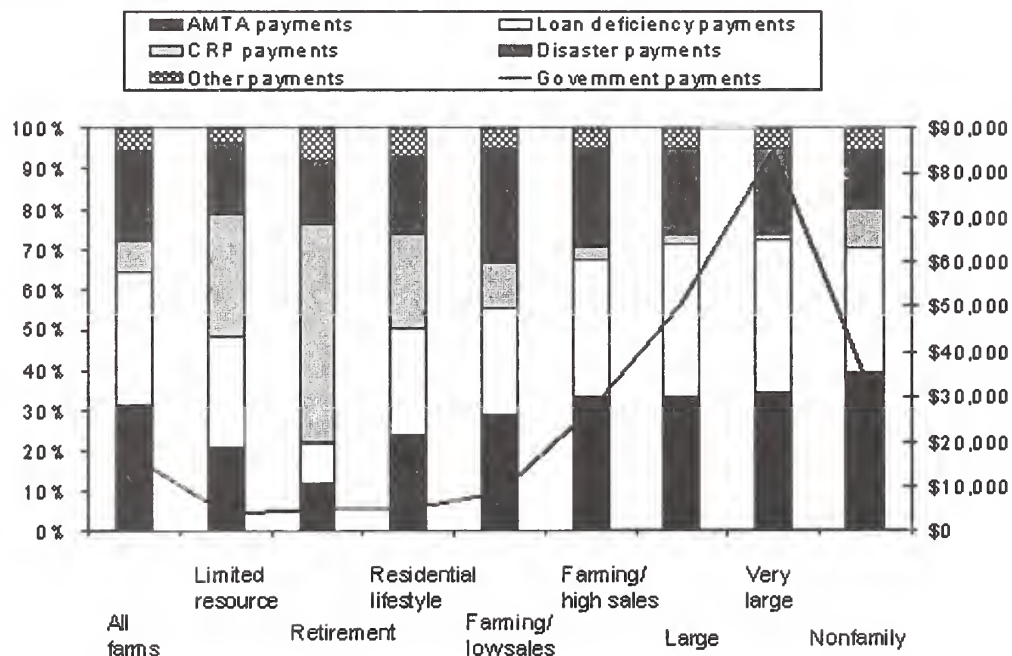


Figure 5

Percent of farms receiving payments and distribution of payment farms and payments by typology, 1999

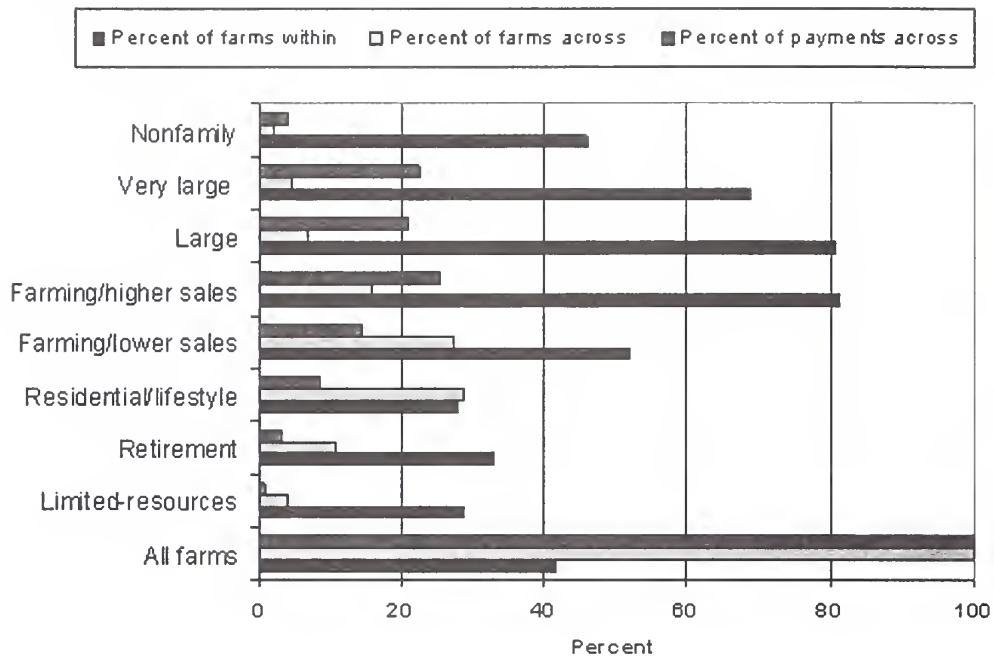


Figure 6

Percent of farms receiving payments and distribution of payment farms and payments by resource region, 1999

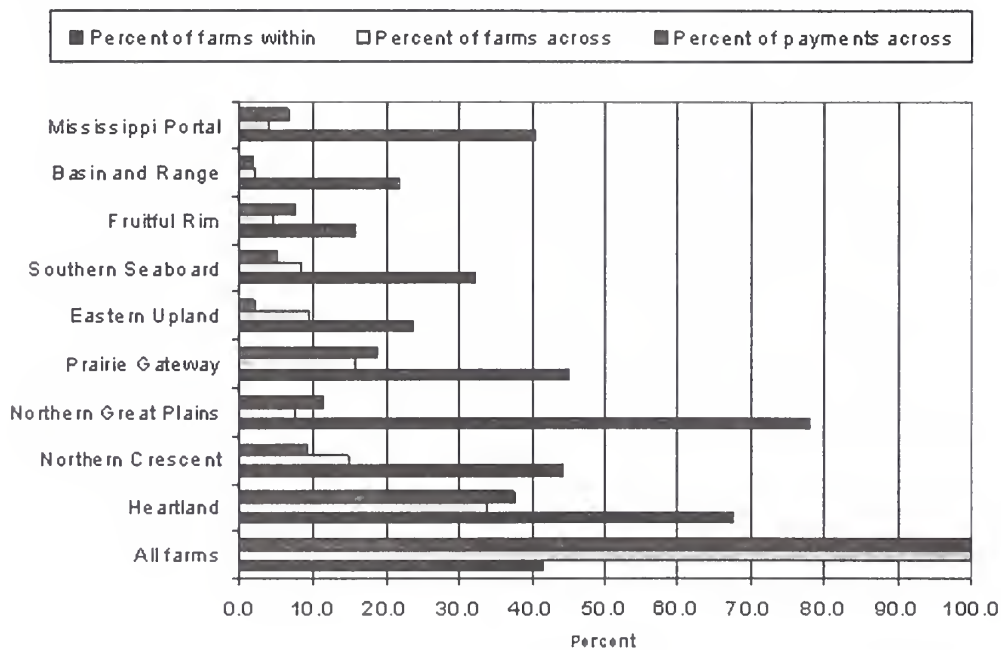


Figure 7

Distribution of farms receiving payments by financial outcome and resource region, 1999

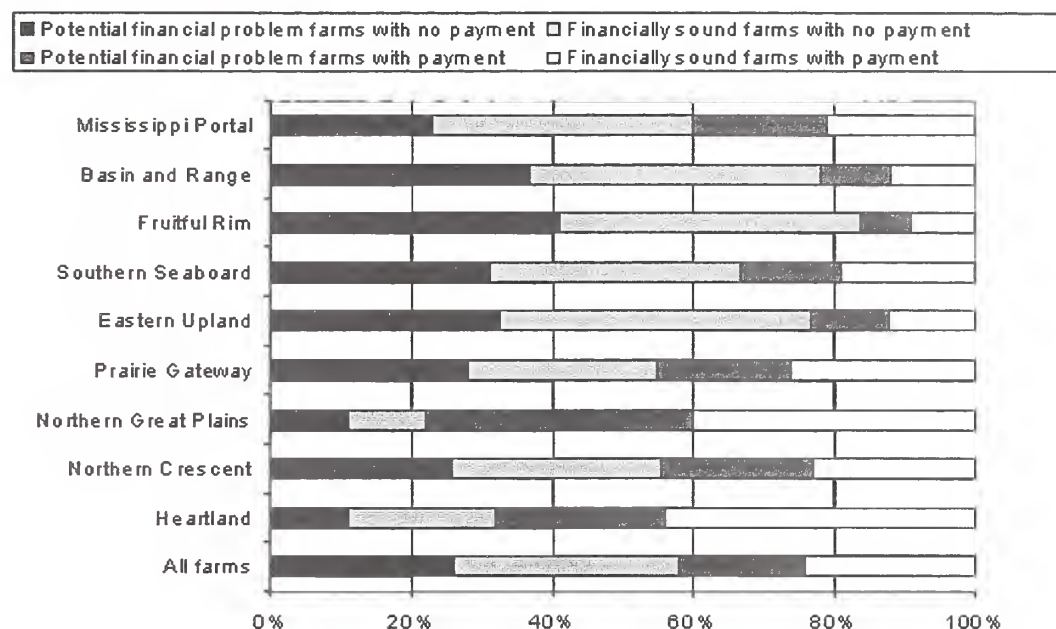


Figure 8

Net Cash Income and Net Rent to Nonoperator Landlords (NOLL) 1970-2001f

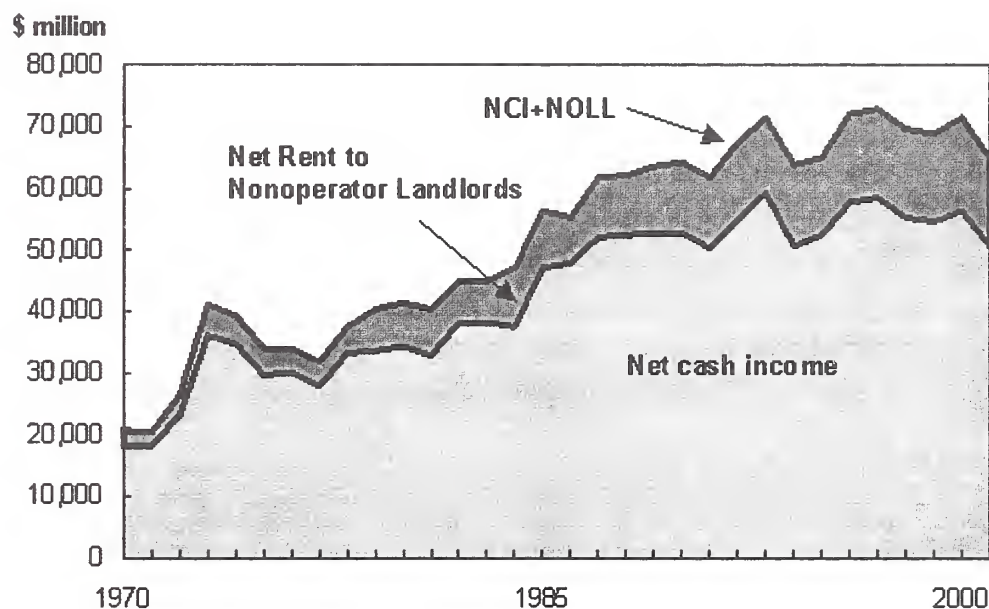


Figure 9

Government payments equaled almost 31 percent of 2000 cash income to operators, landlords, contractors

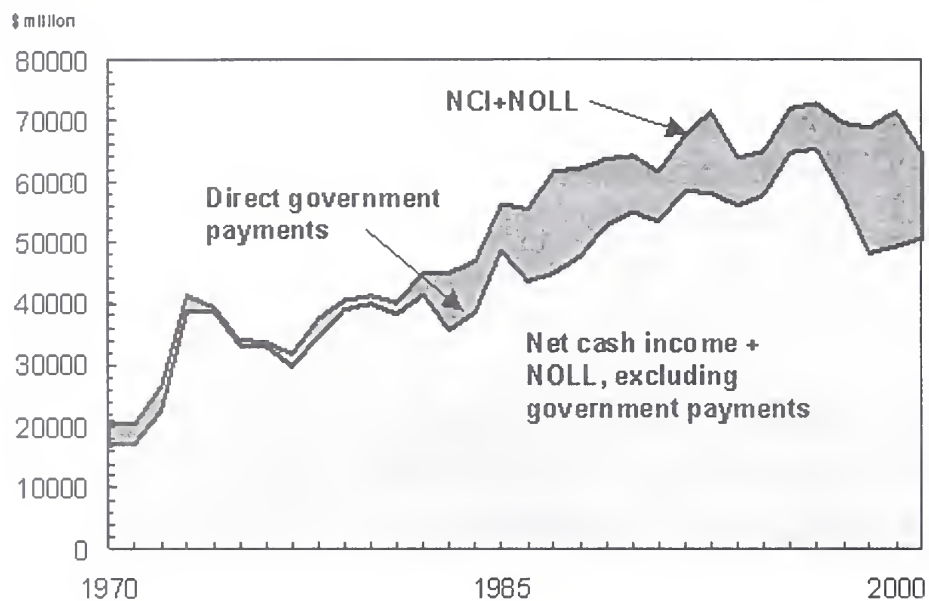


Figure 10

Implicit capitalization rate if NCI+NOLL capitalized into farm real estate values

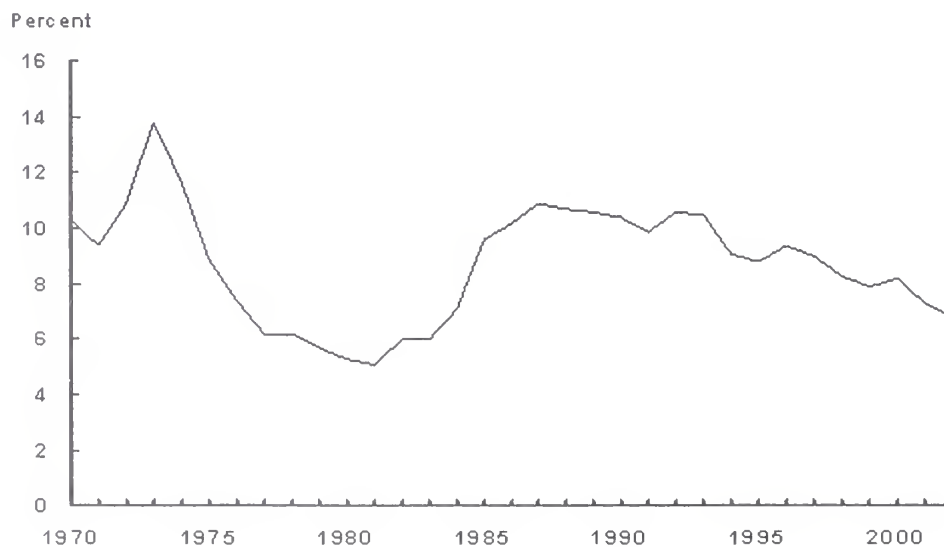


Figure 11

In the absence of government payments, farm real estate values could have adjusted much lower during 1982-99 and 1999-2001f

\$ million

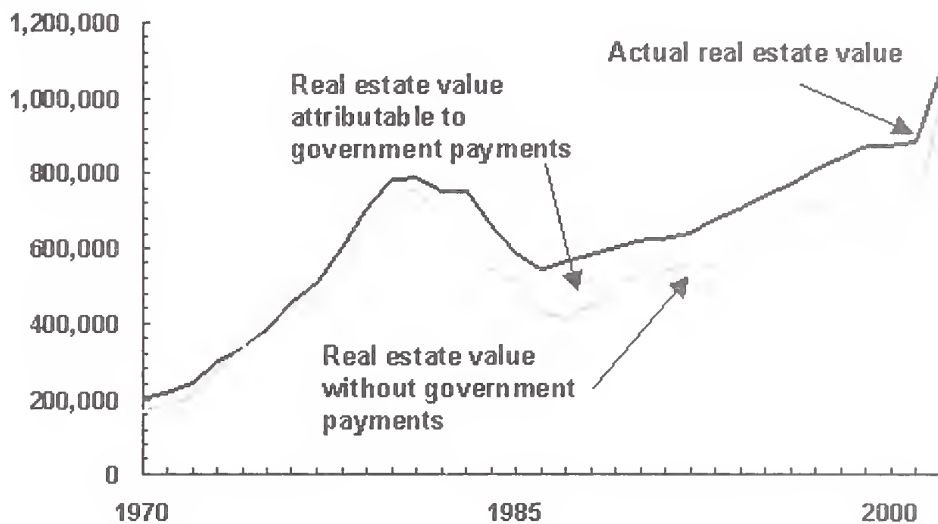


Figure 12

Total tractor unit sales were up 9.1 percent in 2000, but combined unit sales of 4-wheel drives and tractors > 100 hp where almost 29 percent below their 1997 level

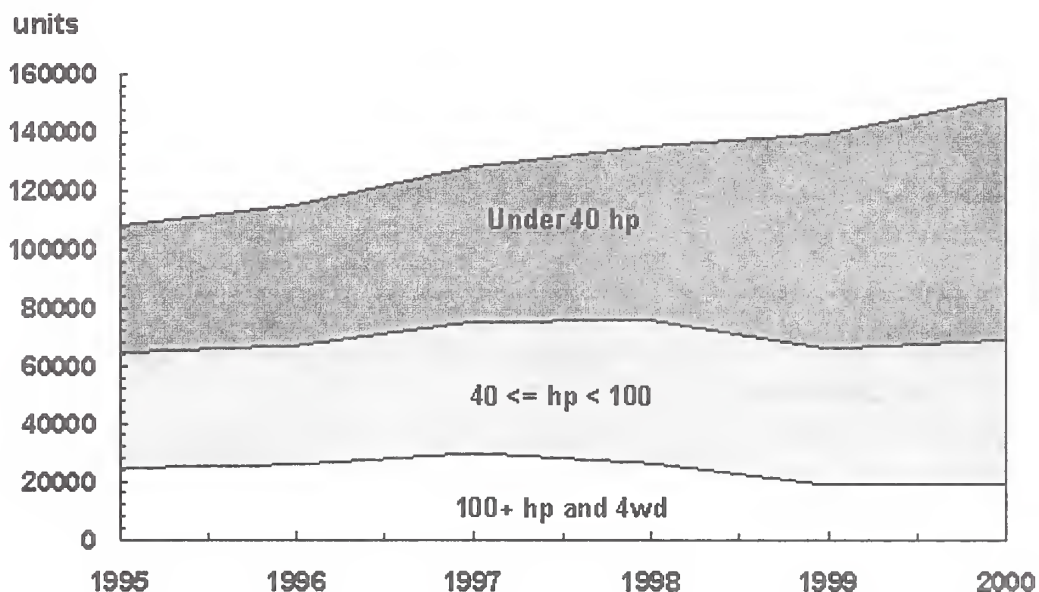


Figure 13

Government payments have helped farm operators meet debt repayment during periods of difficulty

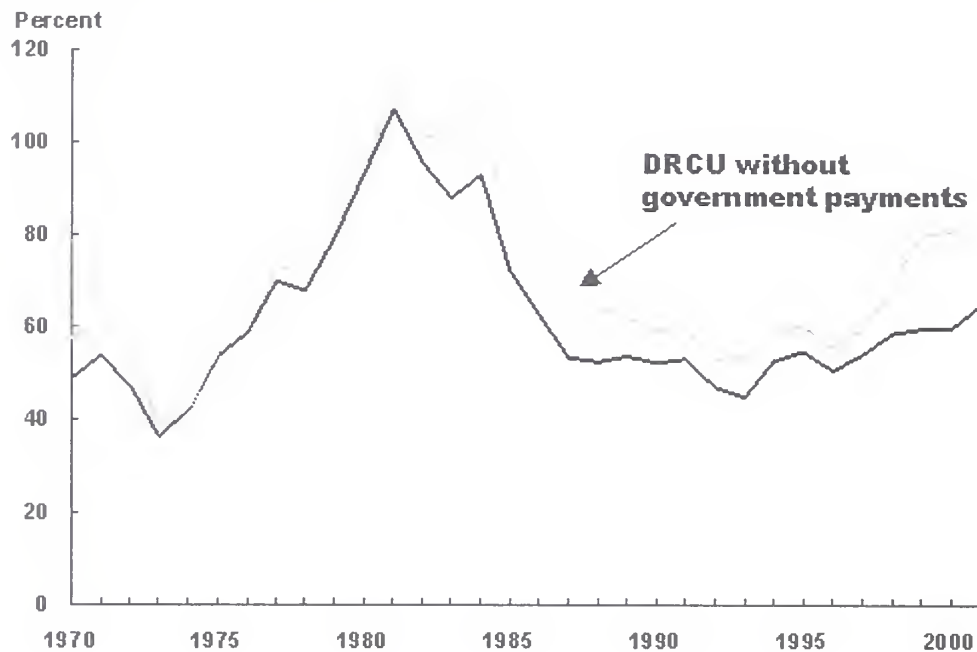
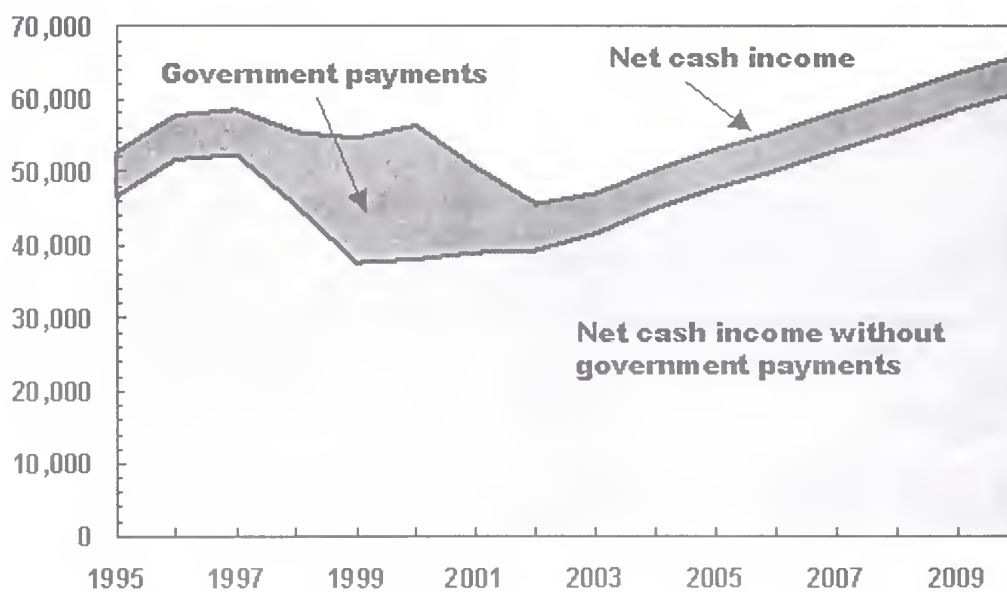


Figure 14

Net Cash Income rebounds, and government payments contribute less, over the Baseline period

\$ million



FEDERAL TAX POLICY AND THE FARM SECTOR

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Farmers would be affected by a number of the proposed general tax cuts as well as several farm-specific tax provisions. This paper presents possible impacts of Farm and Ranch Risk Management (FARRM) accounts and proposed estate tax changes. FARRM accounts would be tax-deferred savings accounts to help farmers manage income variability. The accounts could allow many primary occupation farmers build a sizeable self-insurance safety net, but are not likely to reduce the need for government assistance since many small farmers will be excluded due to low taxable farm income. Estate taxes are currently paid by about 4 percent of all farmers, but a much larger number are required to file, utilize special farm provisions, alter business practices, or engage in estate planning to reduce the impact of the tax. Proposals either to repeal the tax or significantly increase the exempt amount would virtually eliminate the estate tax as a barrier to the transfer of the family farm to the next generation.

INTRODUCTION

Federal tax policies not only influence the financial well-being of the farm household but can also have important effects on the number and size of farms, their organizational structure, and their use of land, labor, and capital inputs. The most important Federal taxes for farmers are the income tax, the self-employment tax, and the estate tax. In 1996, the most recent year for which complete data are available, Federal income taxes on farm and nonfarm income comprised 48 percent of farmers' total tax burden. Social Security and self-employment taxes represented 26 percent and Federal estate taxes just over 1 percent. State and local income and property taxes accounted for the remaining 25 percent (figure 1).

Since most farms are operated as sole proprietors, partnerships or small business corporations, most farm income is taxed under the individual income tax rather than the corporate income tax. Therefore, since the household is the typical unit of taxation, farm and nonfarm income are commingled when computing income taxes. In fact, most Federal income tax can be attributed to nonfarm income.

Since 1980, IRS data indicate that farmers have reported negative aggregate net farm income for tax purposes (figure 2). These farm losses reduce taxes by offsetting taxable income from nonfarm sources. In 1996, farm sole proprietors reported over \$96 billion in taxable gross farm business income but reported a net farm operating loss of \$7.1 billion. The net loss consisted of \$8.9 billion in profits reported by about one-third of all farm sole proprietors and \$16 billion in losses reported by the remaining two-thirds. While losses are distributed similarly to the distribution of the number of farms across the farm typology,¹ 85 percent of farm profits (figure 3) are concentrated among the 26 percent of farms that are primary occupation small farms and large farms.

The Federal individual income tax imposes the largest tax burden on the broadest group of farmers in

¹ The Economic Research Service developed a new farm typology (USDA-ERS) in response to discussions by the National Commission on Small Farms. The typology defines small farms as those with sales less than \$250,000. It further divides them into mutually exclusive groups based on characteristics such as the primary occupation (farming, retirement, or lifestyle/nonfarm), and limited resource (low farm asset base, sales, and household income).

the aggregate, but the relative importance of the different taxes varies with farm size and other aspects of the farm business. Thus, the current tax debate which primarily focuses on the individual income tax and the estate and gift tax is of considerable importance to the farm community.

TAX CUT PROPOSALS

Prospects for a steadily growing budget surplus over the next decade, indications of slowing economic growth, and a Federal tax burden as a share of Gross Domestic Product (GDP) at its highest level since the end of World War II have combined to shift the focus from whether or not to cut taxes to what taxes to cut and by how much. Among the proposals likely to be considered are those passed by Congress in 1999 and 2000 but vetoed by President Clinton as well as President Bush's proposed cuts that total an estimated \$1.6 trillion over the next decade. These include:

- *Across the board reductions in individual marginal income tax rates*
The President's proposal would replace the current tax rate structure with four tax rates of 10, 15, 25 and 33 percent. Like other taxpayers, most farmers are taxed at the current 15-percent marginal tax bracket. However, tax brackets vary widely by farm type (figure 4).
- *Reduction or repeal of Federal estate and gift taxes*
Proposals include a substantial increase in the unified credit or the special deduction for qualified family-owned business interests, conversion of the credit to an exemption, a reduction in estate tax rates, and the complete repeal of the Federal estate tax within 10 years.
- *Tax cuts for married couples*
The President's proposal would provide a deduction equal to 10 percent of the lowest earning spouse's wages up to \$3,000. Other approaches include increasing the standard deduction to twice the amount for a single return, widening the 15-percent tax bracket for joint returns, and extending the phase-out range of the earned income tax credit. Allowing married couples to file as two single taxpayers has also been proposed.
- Other proposals include an increase in the expensing allowance for capital investment, alternative minimum tax relief, a reduction in capital gains tax rates, an increased child credit and expanded tax benefits for education and retirement.

In addition to these general tax proposals, there are a number of potential tax law changes that would be specifically targeted to farmers. These include:

- *Farm and Ranch Risk Management (FARRM) Accounts*
Allow farmers to deposit up to 20 percent of farm profit in tax-deferred accounts in order to accumulate funds that could be used in low-income years.
- *Full deductibility of health insurance premiums*
Accelerate the full deductibility of health insurance premiums that are currently 60 percent deductible and not scheduled to be fully deductible until 2003.
- *Income averaging and the alternative minimum tax*
Farmers would be able to utilize the farm income averaging provision without affecting alternative minimum tax liability.

- Other proposals include a one-time \$500,000 capital gains exclusion on the sale of a farm, the exemption of CRP payments from the self-employment tax and increased reforestation tax benefits.

While many of these tax cut proposals would provide significant tax reductions to farmers, a couple of the proposals are of special interest to the farm community. These include legislative proposals concerning FARRM accounts and reductions in Federal estate and gift taxes.

FARM AND RANCH RISK MANAGEMENT (FARRM) ACCOUNTS

A program of tax-deferred savings accounts for farmers is one alternative being considered by Congress to help farmers manage year-to-year income variability. By depositing income into Farm and Ranch Risk Management (FARRM) accounts during years of high net farm income, farmers could build a fund to draw on during low-income years. Farmers who are able to build new savings through these accounts could self-insure some of their income risk, with the additional incentive of tax deferral and possibly tax savings through bracket reduction.

How FARRM Accounts Would Work

As proposed by Congress, farmers could take a Federal income tax deduction for a FARRM deposit of up to 20 percent of eligible farm income. Eligible farm income is defined as taxable net farm income from schedule F of IRS form 1040, plus net capital gains from the sale of farm assets including livestock but not land. Deposits would be made into interest-bearing accounts, and earnings would be distributed and taxable annually. Withdrawals from principal would be at the farmer's discretion and taxable in the year withdrawn. Deposits could stay in the account for up to 5 years, with new amounts added on a first-in, first-out basis. Deposits not withdrawn after 5 years would incur a 10-percent penalty. FARRM funds would also have to be withdrawn if the participant stops farming. Deposits and withdrawals would not affect self-employment taxes.

FARRM account eligibility would be limited to individual taxpayers – that is, sole proprietors, partners, and Subchapter S shareholders – who report positive eligible farm income. To benefit from the tax deferral, the farmer must also owe Federal income tax in the year of the deposit. Using IRS data, an estimated 916,000 farmers would be eligible to contribute as much as \$2.8 billion to FARRM accounts each year. Farm sole proprietors account for over two-thirds of eligible participants and three-fourths of potential contributions.

Even though sole proprietors dominate these FARRM account estimates, significant variation exists within their ranks. Nearly 73 percent of all farm sole proprietors either report a farm loss or have no Federal income tax liability and therefore either could not participate or benefit from participating, respectively. Nearly half of the remaining 27 percent of sole proprietors who are eligible would be limited to contributing less than \$1,000 in any given year (figure 5). Only about one of every six sole proprietors could contribute more than \$1,000. Thus, while the amount of money necessary to provide risk protection – for either farm operations or household living expenses – is difficult to estimate, with over 80 percent of all farmers limited to contributions of less than \$1,000 in any given year, and with participation rates certain to be less than 100 percent of those eligible, most farmers are not likely to accumulate significant reserves.

Benefits Vary by Type of Farm

While an estimated 27 percent of all sole proprietors would be eligible for FARRM deposits in any given year and the average potential contribution for those who are eligible would be \$3,500, there

would be considerable variation among the farm types (table 1). Large family farms with sales over \$250,000 are the most likely to be eligible, at 69 percent. Their average potential contribution is \$10,800, more than twice that of the next closest group. For these large farms, and even many primary occupation small farms, FARRM accounts could offer the ability to build a sizeable and useful self-insurance safety net over several years.

At the other extreme, however, limited resource farms – farms with sales less than \$100,000 and household income less than \$10,000 for tax purposes – are the least likely to be eligible. Because of low income, most of these farms do not owe income tax and would have no incentive to participate. For the 10 percent who are eligible, their average potential deposit is only \$760. With such small amounts, FARRM accounts would be of little value to limited resource farms.

FARRM accounts will also be of relatively little benefit to other groups of small farms such as retirement and lifestyle farms. Although lifestyle farms make up the largest group by the number of farms, only 20 percent would be eligible because most lifestyle farms report taxable farm losses. On the other hand, many lifestyle farms may not need an additional risk management tool because their primary occupation and source of income is away from the farm.

Table 1— Annual Eligibility and size of FARRM accounts vary considerably by farm type

	Small family farms					Large family farms	All farm proprietors
	Limited resource	Retirement	Lifestyle / other	Primary occupation			
				Farm sales (\$1000)			
				<\$100	\$100-250		
Number of farmers	218,383	261,926	1,167,321	336,498	151,970	82,865	2,218,964
Percent with...							
...schedule F farm profit	51	26	20	51	76	77	34
...taxable household income	17	78	90	69	69	79	76
Estimated percent eligible for FARRM accounts	10	24	20	40	61	69	27
Average potential FARRM deposit for those eligible (\$)	760	2,900	1,600	3,700	4,800	10,800	3,500

Note: Actual participation and deposit amounts are affected by individual behavior and would be less than the eligibility and potential deposit amounts indicated.

Source: Compiled by USDA-ERS from 1996 Internal Revenue Service data and simulations of FARRM Accounts.

Financial Incentives and Policy Considerations

Farmers clearly respond to tax incentives. But without targeting (specifying other income criteria for eligibility), a large share of the benefits could go to relatively few farmers, including some who do not rely on farming for their livelihood. Because the current proposal does not specify a maximum deposit or accumulated balance, about 0.5 percent of sole proprietors would be eligible to contribute over \$20,000 annually, representing 25 percent of total sole proprietors' potential deposits (Monke and Durst). The average off-farm income for this group exceeds \$250,000. This increases the likelihood that their contributions would be high.

To meet goals of increasing risk management and achieving program efficiency (benefits exceeding costs), FARRM accounts must create new savings rather than replace existing risk management practices (Monke). New savings must come from reduced household consumption or from funds that

would have been invested in the business. If deposits come from assets shifted from existing savings, saving that was intended for another account, or borrowing, FARRM accounts would serve more as tax-management than risk management. IRS data suggests that at least initially most farmers who are potentially eligible have ample resources to shift funds into FARRM accounts instead of creating new savings.

In summary, tax-deferred risk management accounts have the potential to encourage farmers to provide their own safety net by saving money from high-income years to withdraw during low-income years. Taxpayers could benefit if farmers' additional financial diversification and liquidity reduce the need for income support programs or ad hoc disaster relief. Nonetheless, several potential limitations to the program's effectiveness exist. These include: (1) low levels of taxable farm income that preclude most farmers from building meaningful balances, particularly those most in need of risk management tools such as limited resource and beginning farmers; (2) concentration of benefits among operators with large farms and relatively high nonfarm income; (3) the forced withdrawal of deposits after 5 years; and (4) funding of FARRM accounts with existing liquid assets instead of new saving. Given these limitations and differences within and across farm types, FARRM accounts may improve short-term cash flow for those who participate but are not likely to significantly reduce the demand for emergency relief from the Federal government.

FEDERAL ESTATE AND GIFT TAX REFORM

Estate and gift tax receipts have historically accounted for a relatively small share of total Federal revenues, accounting for a little over one percent of total revenue in 1998. Although the number of estates subject to tax has more than doubled over the last decade, only 47,483 or about 2 percent of all estates are currently taxable. Nevertheless, while the aggregate importance of Federal estate and gift taxes is small relative to other Federal government revenue sources, the potential impact of these taxes on an individual or group of individuals, such as farmers and other small business owners, can be substantial. Providing relief to farmers and other small business owners was the primary impetus for the 1997 changes to Federal estate and gift tax policies and is a major objective of the current effort to provide additional reductions or to completely repeal Federal estate and gift taxes.

Special Farm Provisions

The appreciation in land values, the increase in farm size, and the rising investment in farm machinery and equipment have increased farm estate values and taxes. Over the years, Congressional concern that the farm sector's increasing estate and gift tax liability might cause the break-up of some family farms and other small businesses has led to the enactment of a number of targeted provisions to provide tax relief to farmers and other small business owners. These targeted provisions include the special use valuation of farmland, the installment payment of estate taxes, and a new deduction for family-owned business interests.

Special Use Value. In general, the value of property for estate tax purposes is the fair market value at the date of death. However, if certain conditions are satisfied, real property included in the estate that is devoted to farming may be valued at the property's value as a farm rather than at its fair market value. In order to be considered qualified property, the property must be transferred to a qualified heir and must satisfy certain participation, use and relative value requirements. For most farms, the use valuation law can reduce the value of the real property portion of qualifying estates by 40 to 70 percent, with the largest reductions occurring for farmland which has residential or commercial development potential. The maximum reduction in value is currently limited to \$800,000 but is indexed for inflation. All or a

portion of the special use value benefits are recaptured if the property is sold to a nonfamily member or if the property ceases to be used for farming within 10 years of the decedent's death.

Installment Payment of Estate Tax. A second special provision currently available to farmers and other small business owners is aimed at the liquidity problem that these businesses can face as a result of having a large portion of the estate in land and other relatively illiquid business assets. While Federal estate and gift taxes generally must be paid within 9 months of the date of death, if at least 35 percent of an estate's value is a farm or closely held business, estate taxes on these assets can be paid over a 14-year period. The interest rate on the first \$1 million in taxable value (above amounts exempted by the unified credit) of the farm or other closely-held business is 2 percent with the rate on amounts above \$1 million equal to 45 percent of the normal rate applicable to underpayments of tax.

Deduction for Qualified Family-Owned Business. Beginning in 1998, a new deduction for qualified family-owned business interests was enacted. This \$675,000 deduction is in addition to any benefits from special use valuation and the unified credit. However, the deduction combined with the amount exempted by the unified credit is limited to \$1.3 million. Participation and recapture provisions similar to those applicable to the special use value provision also apply to this new deduction.

Current Impact of Federal Estate Taxes on Farmers

The changes enacted in 1997 reduced the number of farm estates that will be subject to tax primarily by increasing the amount exempted by the unified credit from \$600,000 to \$1,000,000 by 2006 and by increasing the favored treatment of farm and other business assets over other assets for estate tax purposes. Despite this favorable treatment, nearly twice as many farm estates are taxable than all other estates. Based on simulations using 1998 farm-level survey data, an estimated 4 percent of all farm estates would owe Federal estate and gift taxes, compared to just about 2 percent of all estates. Of the 31,161 estimated farm estates for 1998, about 1 out of every 6 estates had assets in excess of \$625,000 and would be required to file an estate tax return (fig. 6). After deductions, special use value and the family business deduction, only about 4 percent of farm estates would be taxable. The total amount of Federal estate taxes owed by these farmers was estimated at \$735 million. The average tax due for those who owed tax was about \$600,000 on an average net worth of \$2.8 million.

The Federal estate tax burden can be further analyzed by the size and type of farm. Using the new ERS farm typology, it is clear that the Federal estate tax should not be of major concern to most small farms (farms with sales under \$250,000). Only about 3.5 percent of all small farms owe any Federal estate taxes (fig. 7, 8). Compared to small farms, the share of large and very large farms that owe taxes is significantly greater with 10 percent and 17 percent respectively owing Federal estate taxes. In most instances, the tax owed is also greater with the very large farms on average owing over \$1 million in Federal estate taxes.

Without the special provisions, the Federal estate tax would impose a much greater burden on farmers. The potential for savings from these provisions is highlighted by the fact that the special use valuation and the family business deduction reduced both the number of taxable estates and total Federal estate taxes for all farm estates by about half (fig. 9). The largest percentage reductions occurred for primary occupation farms with sales of between \$100,000 and \$250,000. Federal estate taxes for this category of farms was cut by nearly 75 percent. Reductions for retirement farms were substantially less with such farms experiencing only about a one-third reduction in taxes. This reflects the inability of a larger share of retirement farms to qualify for the family business deduction due to the relatively large value of nonfarm assets in the estate. This may reflect the disposition of farm assets in anticipation of or during retirement. Reductions as a percentage of tax were also smaller for very large farms. This can be

attributed to the cap on the reduction in value under the special use value provision and the fixed deduction amount under the new deduction for family-owned business interests.

The installment payment provision further reduced the estate tax burden by providing below market interest rates over an extended repayment period. Over half of all taxable farm estates were eligible for installment payment. These estates owed much higher taxes on average and accounted for over 87 percent of total Federal estate taxes owed by farmers. The present value of Federal estate tax payments for these farm estates was reduced by about one-third.

Who Would Benefit from Repeal or the Alternative Proposals?

While only about 4 percent of all farmers owe Federal estate tax, a much larger number of farmers are required to file, utilize special farm provisions, alter business practices or engage in estate planning to reduce the impact of the tax on their farm business. Thus, while the majority of the benefits would accrue to the 4 percent of farm estates that owe taxes, the repeal of the Federal estate tax would affect a much broader group of farmers.

About 1 out of every 6 farm estates must file an estate tax return. This group of farmers would be relieved of the administrative burden of filing. Also, those required to file but who owe no tax due to special provisions, including special use valuation and the deduction for family-held business interests, may be subject to the recapture of estate tax benefits and may face increased income tax liability due to a lower carryover basis associated with special use valuation provision. The number of farm estates that must file but owe no tax due to these special provisions is estimated at nearly double the number of estates that actually owe Federal estate taxes. As a result of the repeal of the Federal estate tax, these individuals would realize income tax savings and could avoid potential estate tax recapture liability. Finally, those farmers with assets near the filing threshold would no longer need to alter their business plans or engage in other estate planning techniques to avoid the estate tax.

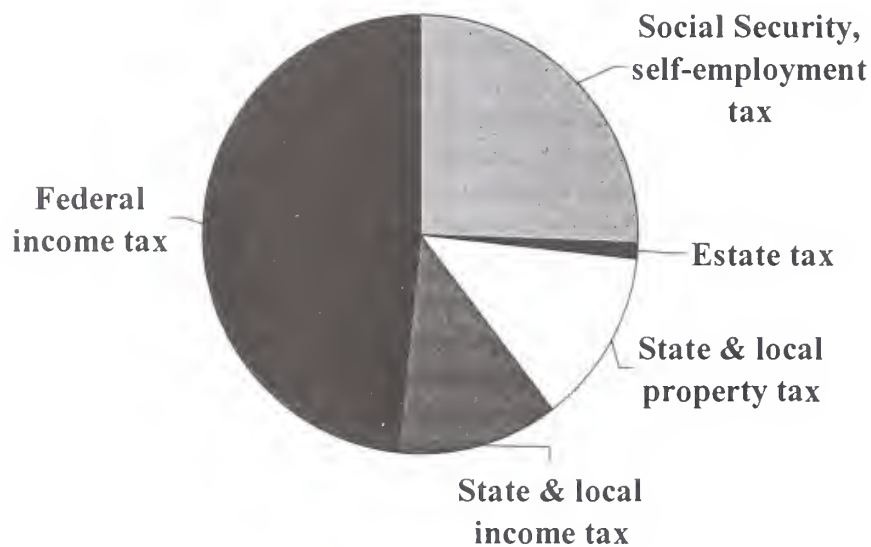
While there is considerable Congressional support for repeal, alternatives such as a significant increase in the unified credit or the value of special provisions for farmers and other small business owners are also under consideration. Due to concerns regarding the cost of eliminating the estate tax, repeal is likely to be phased in over several years and may also involve some limitations on the step-up in basis rules that currently exempt unrealized gains on inherited property from the income tax. Since a large share of the tax is paid by estates over \$5 million, an immediate significant increase in the exempt amount could sharply reduce the number of estates required to file a return and pay taxes while continuing to collect substantial estate tax revenue (fig. 10). As a result, this alternative may provide a greater reduction in taxes to a larger number of farm estates over the next decade. In any event, whether it is a phased-in repeal or a significant increase in the exempt amount, it seems likely that Federal estate taxes will be eliminated as a factor affecting the transfer of the family farm to the next generation.

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Figure 1.

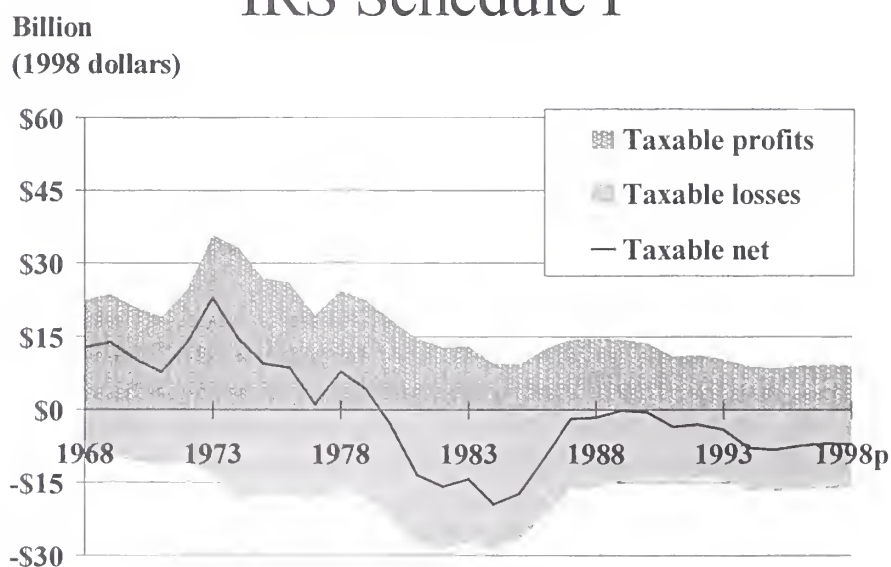
Taxes paid by farm sole proprietors (includes nonfarm income)



Source: USDA-ERS estimates based on IRS Public Use File and USDA data, 1996.

Figure 2.

Aggregate taxable farm income IRS Schedule F

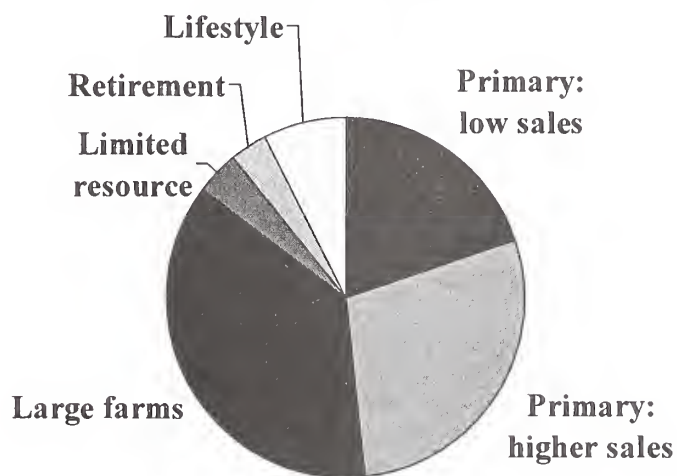


Source: IRS, Statistics of Income Bulletin.

Figure 3.

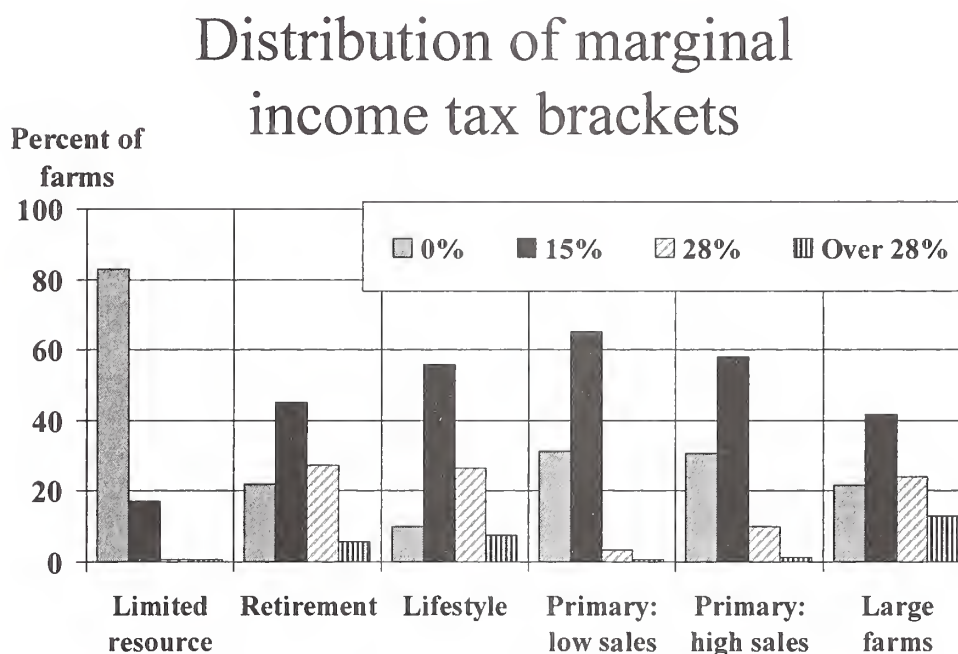
Distribution of Profits on Schedule F

\$8.9 billion



Source: USDA-ERS estimates, based on IRS tabulations, 1996.

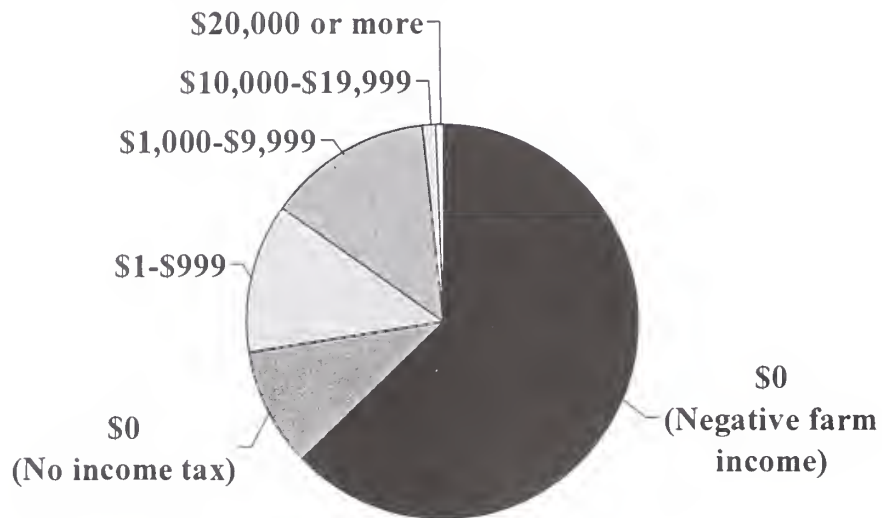
Figure 4.



Source: USDA-ERS estimates, based on IRS tabulations, 1996.

Figure 5.

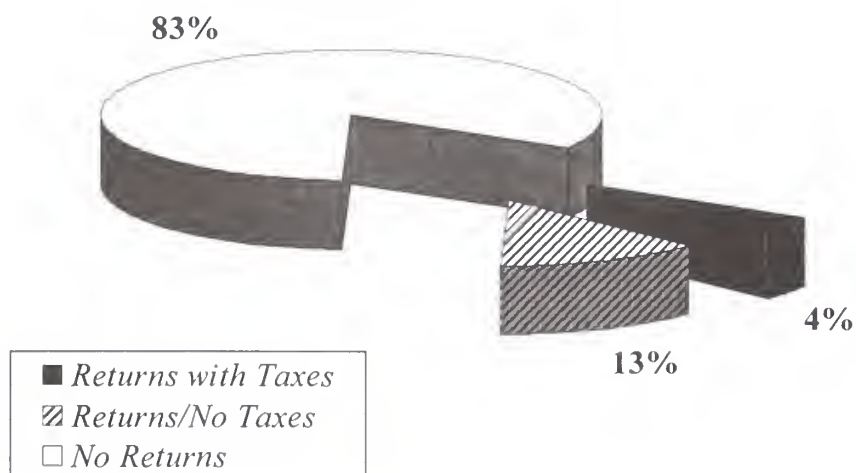
FARRM Accounts: Sole proprietors by size of potential contributions



Source: USDA-ERS simulation, based on IRS Public Use File, 1994.

Figure 6.

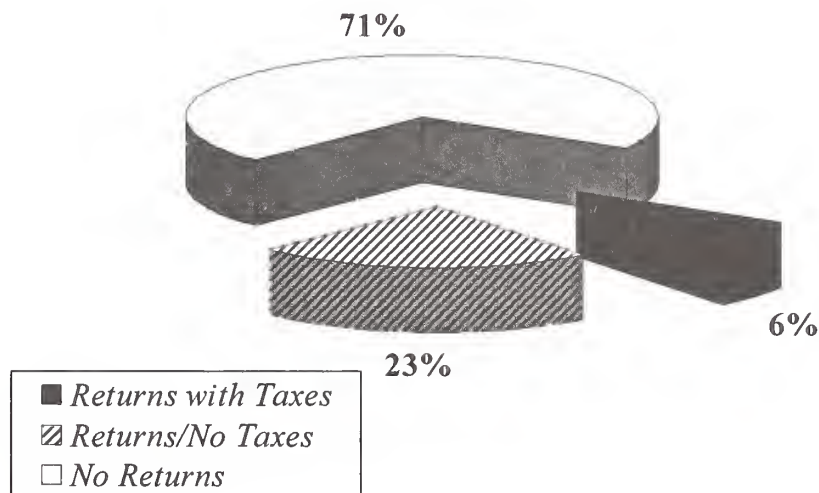
Share of Farm Estates with Returns and Taxes, 1998



Source: USDA-ERS, estimates based on ARMS data.

Figure 7.

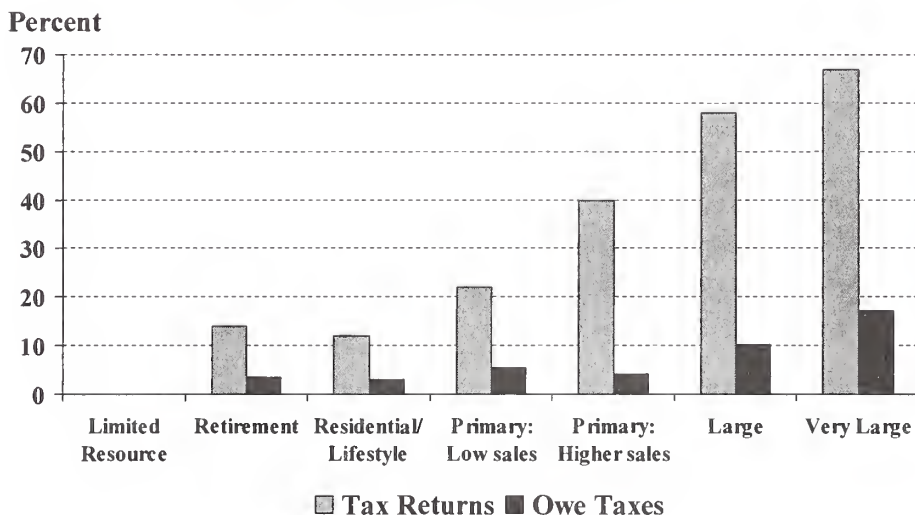
Share of Primary Occupation and Large Farm Estates with Returns and Taxes, 1998



Source: USDA-ERS, estimates based on ARMS data.

Figure 8.

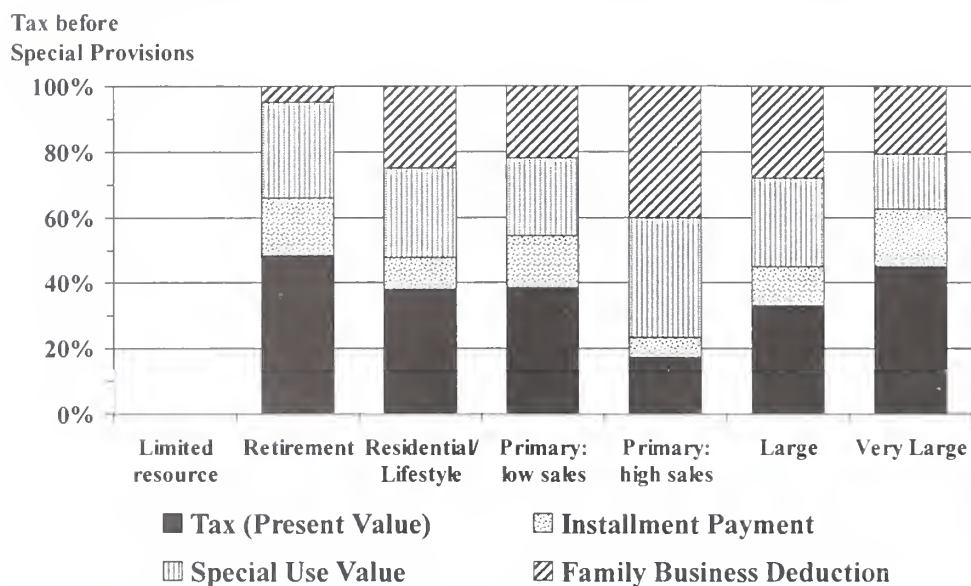
Farm Estate Returns and Taxes by Farm Type, 1998



Source: USDA-ERS, estimates based on ARMS data.

Figure 9.

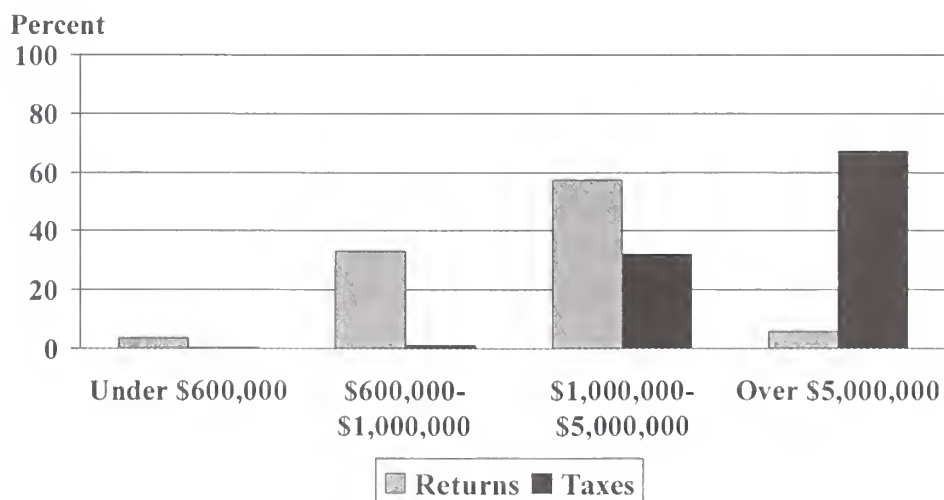
Tax and Tax Reductions from Special Farm Provisions, 1998



Source: USDA-ERS, estimates based on ARMS data.

Figure 10.

Share of Tax Returns and Taxes for Farm Estates, by Size of Net Assets, 1998



Source: USDA-ERS, estimates based on ARMS data.

TRADE AND MACROECONOMIC POLICY: WHAT DOES IT MEAN FOR FARMERS AND LENDERS?

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Macroeconomic policy, exchange rate regimes, international capital markets and trade policy are receiving greater attention as the U.S. economy has become more open and world financial markets have become more closely integrated. Recent international financial crises, on-going world trade negotiations, and uncertain macroeconomic conditions in the U.S. also raise concerns about the effects of macroeconomic and trade policies on incomes and asset values in U.S. agriculture. While the economic impacts of these events have been muted by government transfers to agriculture, macroeconomic and trade policies remain important because of the increasing exposure of the agricultural sector to national and international forces. It is important to recognize that agriculture is quite sensitive to changing exchange rates and interest rates. Consequently, those forces communicate greater volatility to agriculture via commodity and capital markets. As a result, there are several direct and indirect effects of policies that should be considered. We look at the underlying roles of policies and the potential for increased volatility due to stronger linkages between those markets, and the implications for agricultural producers and lenders.

Policy Choices in an Open Economy

In order to explore macroeconomic and trade policies that are pertinent to U. S. agriculture, it is necessary to look at these policies and events in the context of an open economy. With increased globalization of markets, capital mobility has increased across international borders and there has been a gradual opening of the economies, as evidenced by increased trade. "Globalization is like a powerful new medicine," there are large potential benefits but there are also possible side effects (Obstfeld).

An Open Macro Economy

An open economy is simply an economy that is open to trade. That is, there are flows of capital and commodities into and out of the various national economies in response to changing market forces (e.g., changing interest rates and commodity prices). These flows integrate national economies into a set of interrelated global markets for capital and currencies, commodities, and related factors of production. Today, smoothly functioning international financial markets are an important element of the global market system. By systematically reducing the costs of international transactions (and, thus, lowering a barrier to trade) it has been possible for financial markets to create increased economic efficiency and to facilitate an expansion of trade activity.

One indicator of the openness of an economy is the trade-to-income index. An increase in the trade-to-income index implies greater international linkages between the economy and the rest of the world due to increased trade. The average trade-to-income index for the U.S. increased from 9.4% during 1960-69 to 22.3% during 1990-1999 (Table 1).¹ Although still modest by international comparisons, this suggests a further opening of the U. S. economy in the past 40 years.² The comparable trade-to-income index for agriculture is dramatically higher and the trend suggests an even more significant opening of the U.S. agricultural economy.

If a major concern exists over greater openness of the U. S. economy, it is probably that increased openness may lead to a higher degree of domestic financial and economic volatility than would occur if the economy were more insulated. This may be a primary concern, since there exists no early warning system to identify economic crises in the world (Berg and Pattillo). In addition, agricultural producers and lenders may have only limited practical alternatives to hedge those risks. Moreover, interdependence between the U.S. and other major world economies is reflected by the current phase of global economic slowdown. In an international business cycle economies tend to “sink in sync” (The Wall Street Journal).

While the trade-to-income index suggests greater openness in traded commodities, U.S. financial markets have also become more open. Similar measures of the openness of the U.S. financial sector indicate that the U.S. financial sector has become more highly integrated with international capital and money markets (Pederson et al.). The impacts of financial market fluctuations on business activity occur primarily through two channels: changes in the internal net worth of firms and changes in the availability of bank credit (Gertler and Hubbard). In the first channel, financial volatility creates an unexpected change in the level of collateral, a redistribution of wealth, and a change in the level of investment. Via the second channel, financial market volatility creates an unexpected loss of access to bank loans as a source of financing, and the level of investment falls due to reduced liquidity. U.S. agriculture experienced these types of effects in the early and mid-1980s.

Macro Policy Fundamentals

How do we characterize macroeconomic policy choices in an open economy framework? First, we must consider the fact that since 1973 we have operated in a flexible exchange rate system. That is, the exchange rate fluctuates freely in response to changes in the demand for and supply of U.S. dollars in international currency markets. Thus, the dollar is a commodity and the exchange rate is its relative price. The dollar has a nominal price (the nominal exchange rate) and a real, inflation-rate-adjusted price (the real exchange rate). How the real and nominal exchange rates fluctuate is in large part determined by

1 The U.S. trade-to-income index reflects the sum of U.S. exports plus imports divided by U.S. GDP (Grassman). The U.S. agriculture trade-to-income index reflects the sum of agricultural commodity exports plus imports divided by farm sector GDP.

2 Obstfeld suggests that the U.S. economy remains relatively insular when compared to most smaller economies in the world.

economic conditions in goods markets and capital markets in the U.S. and in the other countries.³

First, we consider the role of monetary policy. In a flexible exchange rate system it is possible for the central bank to pursue a more independent monetary policy, since exchange rates can adjust. In order to control interest rates the central bank can adjust the money supply or the discount rate, but it gives up control over the exchange rate. As a result, sectors that are dependent on international trade (such as agriculture) are exposed to more exchange rate variability.

The linkage between the exchange rate and interest rates is found in the concept of interest rate parity.⁴ In market equilibrium, changes in the nominal exchange rate (e) are due to changes in the real exchange rate (E) and the difference between the inflation rates in the foreign and domestic countries, π_F and π_D , respectively. Accordingly,

$$(1) \quad \Delta e / e = \Delta E / E + \pi_F - \pi_D .$$

Thus, either of two factors may lead to an appreciation of the nominal dollar exchange rate - an increase in the relative price of U.S. exports (a real exchange rate appreciation) due to increased foreign demand, or a decrease in the domestic rate of inflation. Given the domestic nominal interest rate (r_D) and the foreign nominal interest rate (r_F), the interest rate parity condition is

$$(2) \quad r_D = (r_F - \Delta e / e) .$$

Here, the impact of macroeconomic policies on the domestic rate of inflation is of importance. Assuming the real exchange rate (E) remains unchanged, an increase in the domestic inflation rate relative to the foreign inflation rate leads to a depreciation of the nominal exchange rate (and a corresponding increase in the domestic nominal interest rate). Conversely, policies that reduce the rate of domestic inflation have the effect of appreciating the domestic currency and reducing the nominal interest rate.

By following a relatively restrictive monetary policy in recent years, the U.S. has experienced a relatively low rate of inflation and with it relatively stable nominal interest rates. This has occurred in spite of changes in the economy (tighter labor markets and recent energy price increases) that might have otherwise touched off an escalation of domestic inflation. Several factors have contributed to the slow rate of price increase. One factor has been the rise in the rate of productivity growth relative to the rate of money growth (Greenspan). The increase in domestic productivity has also had the effect

3 For example, the real exchange rate depends on the level of real GDP in the U.S. relative to the foreign country and the level of real interest rates in the U.S. relative to the foreign country (Abel and Bernanke).

4 Uncovered interest rate parity refers to the idea that in equilibrium the rates of return on comparable assets should be equalized throughout the world since money is fungible. Of course, for this to occur we must have highly efficient capital markets.

of raising the real and nominal exchange rates. Low inflation, a strong dollar and increased credit availability have been the result.

Second, we consider the role of fiscal policy in an open economy. An expansionary fiscal policy (e.g., government spending outpacing government tax revenues) represents an increase in aggregate demand. Through that mechanism, an increase in government spending or a decrease in taxes may raise the level of domestic prices and the rate of interest at home. Of course, this depends on the state of the economy. If the economy is operating significantly under its full employment capacity, the impact of a fiscal expansion may be to induce economic growth with no significant pressure on domestic prices. However, a large fiscal stimulus at the full employment level would result in increased inflation. Based on our earlier analysis, this would lead to a depreciation of the nominal exchange rate.

If exchange rates adjust in response to changes in monetary and/or fiscal policy, what does that imply for trade? As the exchange rate adjusts to market forces, it has potential short-run effects and long-run effects on the demand for U.S. exports and imports. If the exchange rate appreciates, it has the potential effect of reducing the international demand for U.S. products. In effect the price of the domestic product increases in terms of the foreign currency. This decreases foreign exchange earnings and reduces income in the affected sectors. As we shall see, there are direct and indirect effects for sectors such as agriculture.⁵

Agriculture in the Open Economy

In order to systematically consider the effects of macroeconomic and trade policy on agriculture in the current environment, we look first at the short-run effects of monetary and fiscal policy. It is assumed that the short-run effects are typically reflected by changes in farm prices, net incomes, asset values, and certain forms of capital investment. Thus, the effects are expected to be largely financial in nature. Secondly, we briefly consider the role of productivity growth as a factor that influences the competitiveness of U.S. agriculture in international markets.

Macroeconomic Policies

Monetary policy affects agriculture through several alternative channels: interest rates, exchange rates, and credit availability. We are currently observing an easing of monetary policy with the recent drop of 1% in the target federal funds rate (and corresponding decrease in the discount rate) by the Federal Reserve Board. The reasons given for this easing is that during the last few months the economy has shown signs of recession – economic growth has slowed to close to zero and consumer and business confidence have eroded.

5 Schuh (1974) found that during the period following World War II, U.S. agriculture responded to an overvalued exchange rate and falling real agricultural prices by making several structural adjustments. Thus, the direct and indirect effects of the fixed exchange rate regime on agriculture were quite significant.

Generally, the expected short-run effects of an easing of monetary policy are to reduce interest rates, increase credit availability and reduce the exchange rate. The first two factors have direct effects on agriculture and the latter factor has an indirect effect. Compared to what we would have seen without such an adjustment, we expect the change in Fed policy to result in an improvement in the domestic and export demand for crops, a net increase in crop prices, and an increase in domestic input prices. The direct positive impacts on agriculture may include lower interest rates and higher net income. Higher incomes and lower rates provide farmers with more options to refinance or pay down their existing debts. Alternatively, if these improved conditions persist, we could see lower long-term rates and increases in capital investment and asset values (Table 2). While the effect on the crop sector is expected to be generally positive the effect on livestock prices is potentially negative, since higher crop prices reduce the net incomes and the demand of livestock producers.

Concerning credit availability, the effect of easier monetary conditions would appear to be partially offset by stricter lending standards of banks and a general tightening of credit conditions. Recent changes in lending standards of banks lending to large and medium-sized firms (and to a lesser extent to small firms) are occurring at a faster pace than any time since the 1990-91 recession (Ip). This occurs at a time when the balance sheets of banks and other agricultural lenders such as the Farm Credit System are generally much stronger than they were 10 years ago.

The impacts of fiscal policy on the agricultural economy are largely indirect in nature and the effects are more ambiguous. The commodity price effects depend on the U.S. market share of export demand and the magnitude of the price elasticity of demand for U.S. farm exports. It is not clear that there is any significant indirect impact on credit availability in agriculture. In Table 2, we assume that U.S. crop exports represent a sufficiently large share of the export market and they have a relatively high price elasticity of export demand.⁶

Current policy discussions indicate that an expansionary fiscal policy is likely to occur over several years through a broad-based personal tax cut. The impact of such a general tax cut on agriculture is largely indirect and depends on the size and timing of the tax cut. If the tax cut is significantly smaller than the \$1.6 trillion suggested by the Bush administration and/or the implementation is gradual, the implied increase in the rate of inflation due to an increase in aggregate demand is likely to be small. This would occur given the current slow rate of economic growth in the U.S., the possibility of a delay in the tax cut, and/or the likely position that the Fed would take to control inflation. Thus, the short-run impact of the anticipated fiscal stimulus on interest rates and the exchange rate are not likely to be large. If the tax cut were to put upward pressure on domestic interest rates, an increase in the exchange rate would result, leading to a reduction of

⁶ Bredahl et al. provide estimates that the price elasticity of export demand for U.S. farm commodities is likely to be somewhat inelastic due to policies in importing countries that protect their markets from U.S. products. The literature consistently shows that the demand is somewhat inelastic.

export demand for U.S. farm commodities. If the increase in domestic demand (due to the fiscal stimulus) does not offset the decline in export demand, the negative net effect on crop prices would result in lower net income in the crop sector and lower asset values. Lower incomes and higher interest rates contribute to a reduction of capital investment in agriculture.

These short-run effects of monetary or fiscal policy have been identified based on underlying supply and demand relationships. The corresponding long-run implications of changing macroeconomic policy for incomes and asset values in agriculture depend on the productivity of resources in agriculture relative to the productivity in the other sectors that compete for domestic and international capital.

If we compare rates of growth of output as indicators of aggregate productivity, we see that the real GDP growth rate in agriculture has lagged behind the rest of the economy and the trend has been downward (Figure 1). One estimate places the annual real growth rate of agriculture at about 0.25 percent during 1949-1991 (Gopinath and Roe). Several factors have played a role in the determination of this slow real agricultural output growth rate. A key factor has been the growth of total factor productivity (i.e., productivity). When evaluated at constant prices the increase in agricultural output due to improved productivity would have been about 2.3 percent. However, the domestic terms of trade for agriculture worsened during this period, as measured by the decline of agricultural prices relative to the prices of goods and services. The result was the slow real rate of growth in U.S. agriculture.

One study estimates that about 50 percent of productivity growth in agriculture is attributed to public investments in agricultural research and development (R&D) and infrastructure. Private investments in agricultural R&D contributed about 25 percent, and the remaining 25 percent is attributed to R&D expenditures in the rest of the economy (Gopinath and Roe). At the same time, annual growth in public agricultural research and development investments have decreased from about 6 percent in the 1960's to 2 percent in 1990's.

If agriculture is to stay competitive in international markets and continue its growth, additional productivity improvements will need to occur. The slowing of productivity in agriculture implies that rates of return will decline and new capital in the domestic and international economy will be bid away from agriculture.

Agricultural Trade Policies

If we look at the history of the dollar exchange rate and U.S. agricultural exports, we observe that there is clearly an inverse relationship between the level of exports and the exchange rate (Figure 2). Yet, studies show that agricultural exports are not highly sensitive to changes in the exchange rate.⁷ This implies that even a major depreciation of

⁷ Shane indicates that the exchange rate elasticity of farm exports is approximately -0.25 , ignoring the indirect effects of changes in exchange rates on the prices of farm inputs. Thus, a one percent increase in the exchange rate leads to an approximate 0.25 percent decrease in the

the dollar would result in a relatively small increase in total agricultural exports. However, this may not be the case for trade in specific commodities since commodities in the crop sector (e.g., wheat, rice, corn, soybeans and cotton) may be more sensitive to changing international demand and exchange rates than others.

The international financial crisis of 1997-98 increased U.S. agricultural imports and decreased agricultural exports (Figure 3). It also raised concerns that financial instability could have an effect on the volatility of exchange rates and the volume of exports. A look at volatility of nominal and real exchange rates indicates that with the exception of a couple of years in the latter 1980s, volatility of the dollar exchange rate has been confined to less than 10 percent annually (Figure 4). In addition most studies do not find evidence of a strong link between agricultural trade and exchange rate volatility (Langley et al.). Moreover, we do not currently have evidence of differences in the sensitivity of specific farm commodities to exchange rate volatility.

The recent rise in U.S. agricultural imports is attributed to a decrease in world commodity prices during the latter 1990s. The corresponding decline in the value of U.S. agricultural exports is primarily due to a drop in world demand and a corresponding drop in the prices of exports (Shane and Liefert).⁸ The decline in world demand is linked to sharply lower exchange rates and incomes in the countries experiencing financial crisis. Exchange rate volatility *per se* did not appear to play a significant role.

U.S. agriculture has been recently exposed to international market volatility through the sharply rising price of energy. For example, the shock imposed by the current oil and natural gas price increase has a potentially large effect on agricultural sector profits in 2001 through the escalation of fuel prices and the anticipated sharp rise in the cost of fertilizer.

Trade barriers have continued to fall in the 1990s, but world agricultural markets are still distorted (Organization for Economic Cooperation and Development). In 2000, some OECD countries made greater use of export subsidies, export credits and other export-enhancing policies in response to downward pressure on world commodity prices. The U.S. has taken the policy position that trade liberalization has net benefits for U.S. farmers due to the superior operating efficiency of the sector. This policy is embodied in both our policy position towards the World Trade Organization (WTO) and our participation in the North American Free Trade Association (Council of Economic Advisers, 2001). Both trade arenas provide benefits and costs for U.S. agriculture. One of the more anticipated trade developments is the accession of China to the WTO. Based on the 1999 bilateral trade agreement with the U.S., China's wheat imports from the U.S. are projected to increase significantly by 2005 (Koo).

real value of agricultural exports.

⁸ Bredahl et al. estimate the price elasticity of export demand for the major U.S. agricultural commodities. After including the effects of trade distortions on price transmission, the estimated price elasticities of demand are likely to be somewhat inelastic.

The impacts of NAFTA on U.S. agriculture are also an important dimension of our evolving agricultural trade situation since 1994. The structural effects of these trade agreements take time to unfold. However, the preliminary evidence shows that the net effect of trade liberalization under NAFTA on overall U.S. commodity markets has been slightly positive (Secretary of Agriculture). The effect of NAFTA appears to have been to increase the competitiveness of U.S. agriculture by reducing border protection. NAFTA's largest impacts occurred in the products that faced high initial barriers. Data on overall trade with Mexico and Canada clearly shows that U.S. imports have outpaced exports to those countries. Thus, our overall U.S. trade deficit has increased during the NAFTA years. The increase in the trade deficit appears to be in large part attributable to the depreciation of the peso and the Canadian dollar relative to the U.S. dollar (Krueger).

Implications for Farmers and Lenders

With increased use of debt financing and increased dependence on export markets, U.S. agriculture is sensitive to changes in interest rates and exchange rates. These rates are interrelated and changes are transmitted quickly through an efficient set of international currency and capital markets. U.S. macroeconomic policies that alter interest rates and the rate of inflation have an impact on exchange rates and, thereby, the export demand for farm products.

Current economic policy initiatives include an easing of monetary conditions and a planned tax cut in order to offset the current economic slowdown. Both policies should be good medicine for agriculture, as they potentially stimulate domestic and export demand for farm products. Since the current economic slowdown is not confined to the U.S. alone, these policies could have a positive impact on the economies of our trading partners and further stimulate trade. While the short-term implications for agriculture are slightly positive, the long-term picture is less so. The domestic and international competitiveness of U.S. agriculture depends fundamentally on further productivity growth in the sector. Productivity in agriculture has declined in nominal and real terms since the 1960s. Policies need to be considered that will stabilize and/or reverse this trend.

Given the potential for greater market volatility in an open economy, it is important for producers and lenders to consider ways to evaluate and respond to this changing risk environment. I will mention three aspects.

First, the focus of risk management in this environment must be on the strategic risks. Those risks include political, macroeconomic, trade, social and natural contingencies. The dilemma is that these strategic risks are often multidimensional in nature and their consequences cannot be totally managed through conventional means such as futures contracts or insurance instruments (Boehlje and Lins). Thus, farmers and lenders may have relatively few ways in which to hedge the risks that emanate from international markets and financial crises. In the case of agricultural lenders, these factors lead to broader (covariant) risks in their loan portfolios. Thus, producers and lenders need to develop creative approaches that emphasize flexibility, adaptability and diversification.

For example, lenders are exploring alternative methods of quantifying credit risk at the portfolio level and using active portfolio management strategies to manage the risks. We have seen that macroeconomic policy is an important factor in changing market interest rates, exchange rates and general economic conditions in agriculture. Thus, it is important for lenders to incorporate information about the impacts of these policies and economic conditions into an assessment of the expected losses in their loan portfolios.

In order to quantify credit risk in a portfolio one can decompose it into transaction risk, intrinsic risk and concentration risk (McKinley and Barrickman). Transaction risk focuses on the variability of credit quality and the volatility of earnings of individual borrowers. Thus, the emphasis is on measuring individual credit risk. Intrinsic risk reflects the potential for portfolio deterioration due to historical, predictive, and lending risk components – the predictive aspects of which reflect the sensitivities of commodity groups to macroeconomic and trade policies. Here the emphasis is on measuring credit risk in an industry. Concentration risk is the aggregation of the transaction and intrinsic risk measures to reflect the implied correlation of individual and industry risks. In order to assess overall portfolio credit risk exposure it is important for lenders to develop a quantitative risk profile based on all three of these risk components.

Second, producers and lenders need to consider the fact that the Internet Age has changed the speed of response in the domestic and international economy, particularly with respect to changes in the policy arena. For example, companies are more instantaneously informed about their inventory levels and managers can make faster assessments and adjustments to liquidate excess inventories in an economic downturn. Thus, the response to changes in monetary policy occurs more rapidly and the economic and financial effects of policy are transmitted through the economy faster than they were previously. This means that turns in the business cycle are likely to be sharper, and they provide decision makers less time to adjust to the new economic environment. Both producers and lenders need to be aware that their management response times need to be shortened and flexibility needs to be increased. This implies a greater need for liquidity in the agricultural sector.

Third, it is important for producers and lenders to recognize that the indirect effects of changing macroeconomic and trade policies on agriculture are typically larger than the direct effects. These indirect effects are transmitted to agriculture through domestic and international markets in which sensitivities to U.S. policy changes may vary significantly. The crop and livestock sectors of the U.S. agricultural economy are likely to differ in their sensitivities to macroeconomic and trade policy adjustments. Thus, an appropriate analysis of policy impacts must look within agriculture to see the distribution of these economic and financial consequences.

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Table 1. Trade-to-Income Indices, 1960-99.

Period	U.S. Total	U. S. Agriculture
Decade Averages:		
1960-1969	9.4%	47.1%
1970-1979	14.8%	64.3%
1980-1989	18.7%	85.6%
1990-1999	22.3%	96.0%
Detail:		
1995	23.3%	118.3%
1996	23.5%	102.0%
1997	24.4%	106.2%
1998	23.8%	110.8%
1999p	24.3%	95.2%

Source: Derived from *Economic Report of the President, 2000*.

Table 2. Short-Run Effects of Macroeconomic Policy Actions on Agriculture.

Effects of Policy On Farm:	Expansionary Policy		Contractionary Policy	
	Monetary Policy	Fiscal Policy	Monetary Policy	Fiscal Policy
Crop Prices:				
Domestic Demand	Higher	Higher	Lower	Lower
Export Demand	Higher	Lower	Lower	Higher
Net Impact	Higher	Lower a/	Lower	Higher a/
Livestock Prices	Lower	Higher a/	Higher	Lower a/
Input Prices	Higher	Higher	Lower	Lower
Interest Rates	Lower	Higher	Higher	Lower
Net Income	Higher	Lower b/	Lower	Higher b/
Real Estate Prices	Higher	Lower b/	Lower	Higher b/
Capital Investment	Higher	Lower	Lower	Higher

a/ The effect could be lower or higher. This effect assumes a relatively high market share for exports and a relatively high price elasticity of export demand.

b/ Assumes the impact on crop prices and interest payments offsets the impact on livestock prices. Government payments are assumed to be constant.

Source: Adapted from Penson and Ellinger.

Figure 1. Real Growth Rates of US and Ag Sector GDP

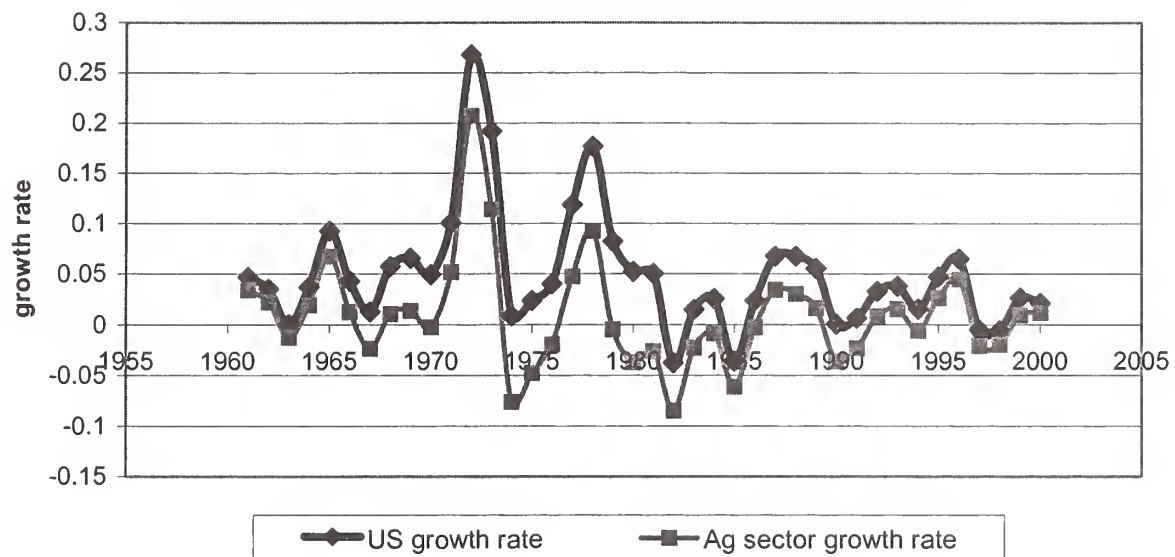


Figure 2. Exch. Rate, Ag. Exports and Imports

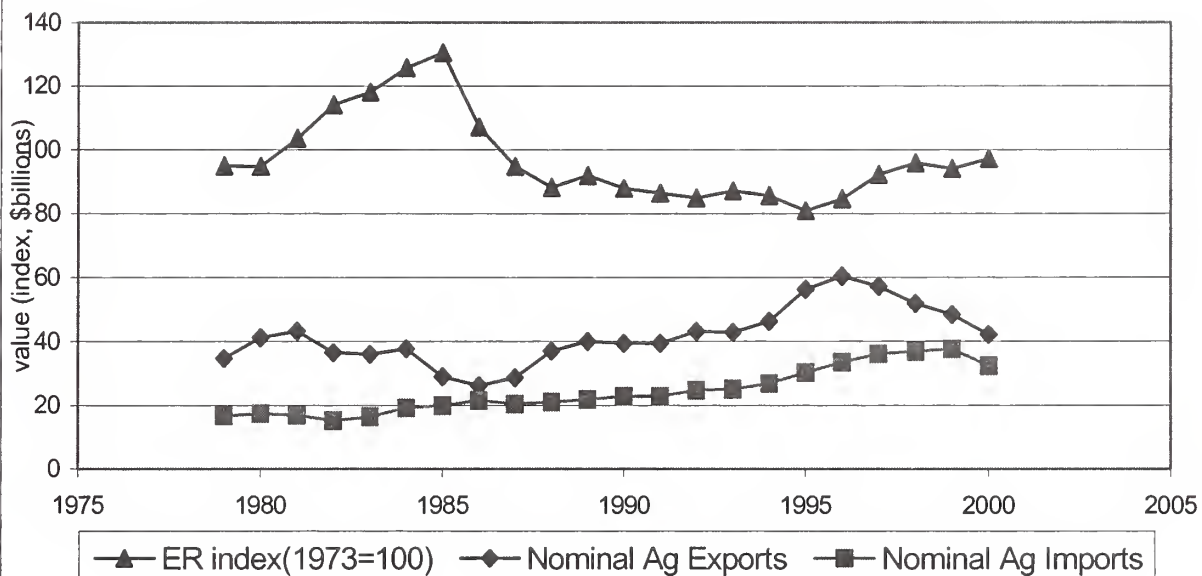


Figure 3. Nominal Ag. Exports and Imports

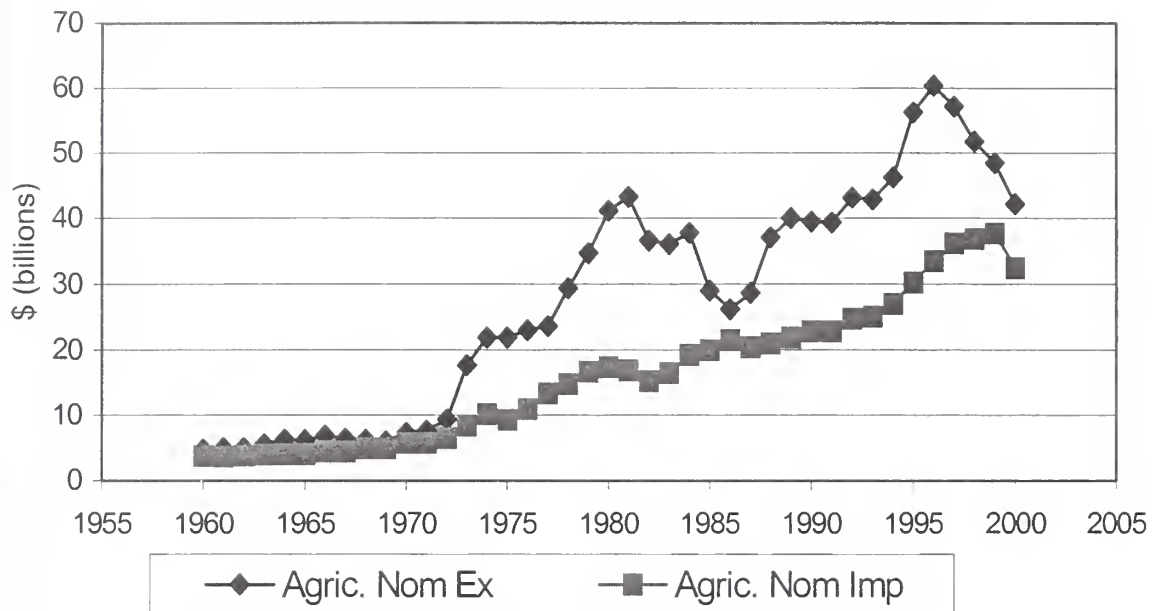
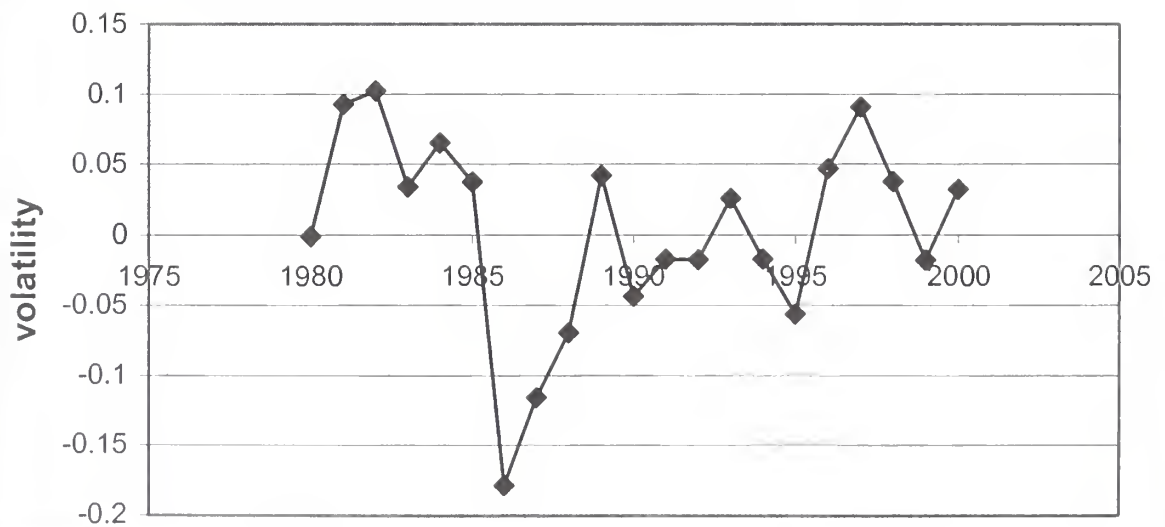


Figure 4. Volatility of Nominal Exchange Rate



ATTRA GRAZING MANAGEMENT PROJECT—SUSTAINABLE GRAZING SYSTEMS

Ron Morrow, PhD

Technical Services Manager

National Center for Appropriate Technology/Appropriate Technology for Rural Areas (NCAT/ATTRA)

Background

ATTRA is the national sustainable farming information center and is funded by the USDA Rural Business—Cooperative Service. The project is managed by the National Center for Appropriate Technology (NCAT) as part of the Sustainable Agriculture and Rural Development Program. ATTRA provides information free-of-charge to farmers, Extension agents, and other information providers with the goal of helping US farmers boost profits and become better stewards of farm resources. Since its inception in 1987, ATTRA's staff has prepared over 150,000 written responses to callers who access the service through a toll free phone number. ATTRA materials are available by calling 1-800-346-9140 or accessing the website (www.attra.org). ATTRA technical specialists prepare written responses to questions coming in from the individual phone calls. Through the years nearly 150 publications have been developed addressing topics related to sustainable agriculture. These are updated annually.

In the past three years, ATTRA has experienced a significant increase in questions about sustainable livestock production, and a strong interest by both producers and educators has been expressed in having access to materials and workshops beyond the resources of ATTRA's normal mail response service. Since the basis for sustainable livestock production is primarily pasture and range management for ruminants (Baker et al., 1990), we have substantially increased the emphasis on use of natural resources for grazing animals. Through ATTRA we have expanded the publications available with an emphasis on different levels of information, from the beginning farmer to persons needing advanced information to fine-tune their programs. Through funding for related projects we have been able to enhance our efforts by leveraging ATTRA's base program to include workshops, development of other materials, working directly with farmers and educators. This has helped us determine the training needs farmers and educators have to be more sustainable. We have defined the primary audience as farm families (and educators working with them) who are trying to generate one income on the farm. Additionally, we feel a systems approach is an important component of development of a grazing program. This approach integrates all aspects of livestock production and farm planning into the goals of the farm.

Livestock producers need to evaluate inputs and practices for their potential to optimize production and make the best use of natural resources. Better management of natural resources can lead to improved production efficiency through decreased inputs, i.e. fertilizer and herbicide use on pastures. In recent years detailed information has been made available on good grazing management of livestock, but not much information is available on integration of all components into a sustainable production system.

Areas of weakness are

- production of forages with lower inputs,
- meeting nutritional requirements of animals with minimal supplementation and fewer harvested forages,
- options to decrease health costs through better nutritional and behavioral management of livestock,
- land use management
- marketing options, including direct marketing to consumers,

Integrating these components to improve farm sustainability necessitates a holistic approach to management by landowners planning their farming operations and by the educators who are partners with them in their efforts.

ATTRA materials on grazing management

The foundation of the ATTRA grazing management program is the series of publications listed below. A large percentage of them are on the website. These publications range from introductory to advanced, all containing information on the latest research on grazing as well as practices used by farmers around the world. A large amount of information from New Zealand is used in some of the advanced publications. Some of the advanced publications were developed through other projects. We use these publications as the basis of most of the workshops we teach.

- Sustainable pasture management
- Sustainable soil management
- Rotational grazing
- Sustainable beef management
- Sustainable sheep management
- Introduction to paddock design and fencing-water systems
- Matching livestock and forage resources
- Meeting the nutritional needs of ruminants on pasture
- Assessing the pasture soil resource
- Nutrient cycling in pastures
- Beef farm sustainability checksheet
- Alternative beef marketing
- Controlled grazing of horses
- Grass-based and seasonal dairy
- Dairy farm sustainability checksheet
- Integrated parasite management

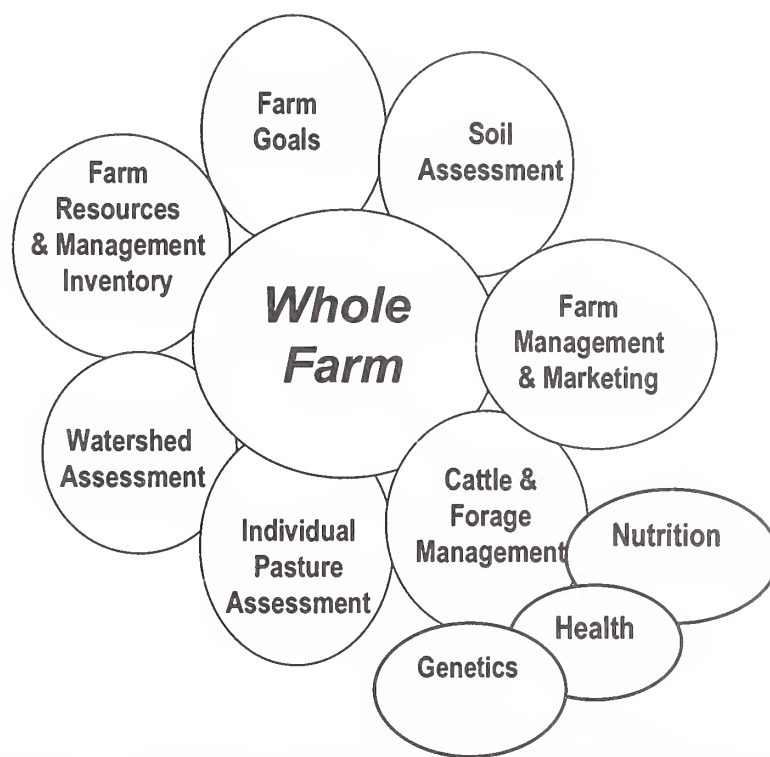
Sustainable beef management workshops

As a faculty member at the University of Missouri, I, along with Jim Gerrish, initiated grazing management workshops for farmers and educators (Morrow et al., 1993; Gerrish et al., 1995). We felt a key element in the training was that participants see the application of research in a farm setting rather than receiving fragmented information on research through the normal field days and/or extension meetings. Another unique aspect of the workshops was the opportunity for producers and educators to learn from each other during the sessions.

Therefore, a similar program was conducted when ATTRA and the University of Missouri Forage Systems Research Center collaborated on sustainable beef management workshops. The workshops were quite successful in stimulating critical thinking on how the whole farm plan interfaces with the grazing livestock operation. Results of a recent survey of participants indicate they have successfully integrated information from the workshops into their farm planning. Other workshops have been taught at various locations around the country (see section on beef sustainability checksheet).

Development of the beef sustainability checksheet

Based on the experiences of teaching grazing workshops and the sustainable beef management workshop we then applied for and received a Sustainable Agriculture Research and Education (SARE) grant from the Southern Region to develop a beef farm sustainability check sheet. The group that



developed the check sheet was made up of farmers, researchers, conservationists, extension agents and ATTRA technical specialists (Morrow et al., 1998; Wells et al., 1998).

The initial basis of the check sheet was work by Taylor et al. (1996). These faculty at South Dakota State University reported on development of a Producer Organic Index (POI) and a Producer Sustainability Index (PSI). The PSI reflected a broad range of concerns including long-term natural resource conservation and economic staying power of beef cattle producers. Their perspective was that the indices could provide insight to beef cattle extension specialists and individual producers on the strengths and weaknesses of management practices. J.C. Buys, working through the Centre for Agriculture and Environment in the Netherlands, has developed “yardsticks” for pesticides, nutrients, energy and biodiversity for farmers. Particularly appropriate to the check sheet was his yardstick on nutrient inputs. Farmers have an “accounting” system to register the nutrient inputs that come onto the farm (fertilizer and feedstuffs) and outputs, which go off the farm (milk, meat, etc.). The difference is the potential loss to the environment.

Our objective was to establish a check sheet of practices or technology that will be used by extension agents and conservationists in partnership with beef producers to assess the sustainability of their operations and to guide the decision-making process. The check sheet is not an index but serves as a focal point to suggest production and management alternatives that can increase sustainability. The check sheet is a 13-page document with over 200 questions and is available for producers and educators to use as a guide to stimulate awareness of the whole farm, not to rate management practices. Consideration must be given on how decisions made in one area impact the results in other areas of a farm. Many factors are considered “best management practices” designed to enhance profitability, sometimes through increasing production and other times by decreasing inputs.

The check sheet is a tool for educators to use a whole-farm approach to beef operations, to analyze the farm and identify “problem areas” and structure information geared to the producer’s goals through a better understanding of the educational needs of the farmer. We have learned from farm visits and workshops that the check sheet is very complete and does stimulate critical thinking. The check sheet is long and complex; therefore, an abbreviated version has been developed for educators to use with

persons who may not be as advanced in their production system as those who benefit from using the longer version.

An important contribution of the check sheet has been the benefits of bringing together a diverse group of individuals. Thought processes of individuals have been expanded, more collaborative programs developed, and other grant activities planned. A producer network has been established from the group developing the check sheet and producer grant activities are being discussed (see section on Grassroots Grazing Group). One producer, who was involved in the process, has been involved in several programs and workshops, illustrating that farmers can be used to “educate educators”. Another producer involved in the process indicated that working on the check sheet was the start of a new phase of thinking about the cattle business. Still another producer indicated that she was of the opinion she was doing a good job but after going through the check sheet, she defined “twenty” things she needed to be working on. A great concern in the educational system is having personnel at a local level with the experience and enough understanding of agriculture to work with farmers. In one state the check sheet was used to train new extension agents on how to work with producers.

The workshops have provided training on how the check sheet can be used and start the process by which a producer or educator changes their way of viewing a farm as a system rather than individual pieces. It changed the thinking of those who helped create it; it changes the thinking of those who use it. It is not a one-time cookbook document; instead, it is an ongoing process, allowing the producer to think of and implement changes as he/she improves his/her operation.

Grassroots Grazing Group

Farmers change management practices more quickly when they see their neighbors adopting practices. Through the development of the beef checksheet and teaching the sustainable beef management workshops, we realized that we needed to go a step farther in reaching more farmers. We also realized that producers who are the leaders in their communities in adapting better management practices need support to fine-tune their management programs. This primarily is a need to interact with producers/educators who have similar goals. We have found a producer network is almost a necessity as questions arise for which few local resources of information have the answer.

In addition to the persons who had helped develop the beef checksheet, we identified individuals in the area who had been to a grazing workshop sponsored by the University of Missouri or University of Arkansas and invited them to a pasture walk. The pasture walk was hosted by the leading innovator in the area, who had developed his controlled grazing operation from seeing farms throughout the world while serving in the military. His need for information had surpassed the knowledge available in his community. Through an EPA Sustainable Development Challenge Grant we formed a producer-networking group, Grassroots Grazing Group. We now have over 100 farm families and educators involved. These families represent several states--Iowa, Missouri, Arkansas, Oklahoma, Colorado, Tennessee, Virginia, Florida. We developed a listserv for members to ask questions and discuss their management and have plans to offer the listserv to ATTRA users nationwide. In addition to the listserv the group hosts pasture walks, seminars (such as fencing and water systems workshops) and tours to research facilities. We have participants that will drive three hours one way to attend a pasture walk. We developed guidelines for pasture walks from similar groups in Minnesota, Wisconsin, Australia and New Zealand and are incorporating that information into an ATTRA publication.

Another important segment of the EPA grant was to offer training sessions on advanced grazing management to GGG members and educators in northern Arkansas and southern Missouri. A suggested requirement for participants was to have attended a grazing management workshop prior to being

involved in the training sessions. Farmer participants were required to sponsor pasture walks and work with persons in their community by demonstrating controlled grazing management on their farm. These training sessions were very well received, and the participants asked that they continue another year. One activity of special significance was a session where we had a faculty member with the University of Arkansas conduct a session on computer formulation of livestock rations for wintering livestock. We then had participants sign on to the listserv to ask questions and have rations formulated. Two persons on site were typing the information in and sending to the listserv and reading email messages with questions to the moderator of the session. Unfortunately, some members of the group signed on the next day to find 200 messages from the session! (These sessions have benefited us by helping us to ID areas we can work on to provide the better information to farmers and educators.)

Development of the dairy farm sustainability check sheet

After the development of the beef checksheet we had educators working with dairy farmers ask us to develop a dairy farm sustainability checksheet. We submitted and had approved another SARE PDP grant. That project will be finished this year. The dairy check sheet is 22-pages long. The checksheet is a diverse document in that it has sections for grass-based dairies, goat and sheep dairies, and dairies direct marketing organic milk. This project also has a component to evaluate distance learning over the internet rather than conducting workshops per se. We have found that many educators at the county level do not have dairy experience, and the use of the dairy farm sustainability checksheet gives them a tool to work with dairy farmers.

Whole farm planning for the production of grass-fed beef

The most recent project to continue our work in sustainable grazing systems is a SARE Research grant funded this last year to evaluate production of grass-fed beef for a growing specialty market. The intent is to integrate whole farm planning perspectives of managing the soil resources, forage base, and cattle program to develop a grazing system to produce a quality meat product for direct marketing. We are conducting case studies of farms interested in production of grass-fed beef and will monitor all inputs and outputs of the farms.

NRCS workshops on sustainable beef systems

We have an agreement to conduct training workshops for NRCS personnel regarding sustainable ruminant production systems. The basis of the workshops is the sustainable beef checksheet. Each participant will receive the sustainable beef management notebook we have developed. This notebook contains all of the appropriate ATTRA publications related to grazing management, soil management and livestock management referenced earlier. The first workshop is in Kingsport, Tennessee March 8-10. Others being planned include two workshops in Northwest Arkansas. One of these will feature management of cool season forages and the other one warm season grasses such as bermuda grass and crabgrass.

NCAT task forces in ruminant-forage management systems

ATTRA is a project within the NCAT Sustainable Agriculture and Rural Development Program. Our intent is to leverage ATTRA activities to broaden the scope of the SARD effort while also strengthening the ATTRA project through supporting projects. We have structured our technical service specialists into task forces to address key issues we feel need more in-depth information to assist farmers and educators over the next 3-5 years. Two of these of special interest to the sustainable grazing systems work are the Ruminant-Forages Task Force and the Organics Task Force. Sustainable grazing systems should be the foundation of organically produced livestock.

Summary

Sustainable grazing systems are a strong component of the ATTRA project. Building on the base of publications developed through the years to answer farmer/educator questions, we have strengthened the grazing systems effort through projects funded by other programs. Through our projects we have been able to work more directly with educators and farmers to initiate change. We feel key ingredients in the success of work have been the

- building of peer relationships between farmers and educators,
- establishing support for people who take risks on their farms and in their communities,
- illustrating the value of the group approach in multiplying learning, both among farmers and technical “experts”,
- forming a renewed sense of community in the participants in the projects.

The results are

- community building
- real changes in how people farm
- leadership development
- shared learning
- renewed sense of excitement
- enjoyment in farming.

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Antitrust Counseling in the World of B2B E-Marketplaces

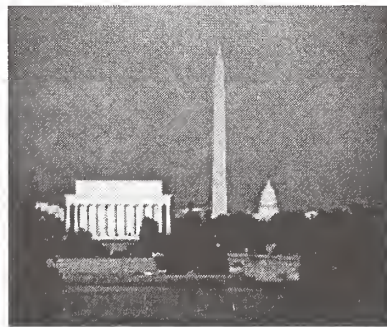
Susan DeSanti

**Director, Policy Planning
Federal Trade Commission
February 22, 2001**

Department of Agriculture
Federal and State Perspectives on E-Marketplaces
for Agricultural Commodities

B2B Issues

- FTC B2B Workshop
- FTC Staff Report
- Covisint





FTC Workshop: Competition
Policy in the World of B2B
Electronic Marketplaces
June 29-30, 2000

Materials are on the FTC's website:
<http://www.ftc.gov>

Potential Sources of Efficiencies

- Reduction in Administrative Costs
- Reduction in Search Costs
- New Market Opportunities
- Reduced Maverick Purchasing
- Joint Purchasing
- Systems Integration
- Supply Chain Management

FTC Staff Report



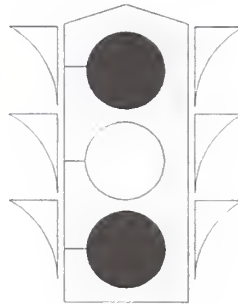
Entering the 21st Century: Competition Policy in the World of B2B Electronic Marketplaces (October 2000)

Long-Standing Antitrust Principles and Evolving Technology

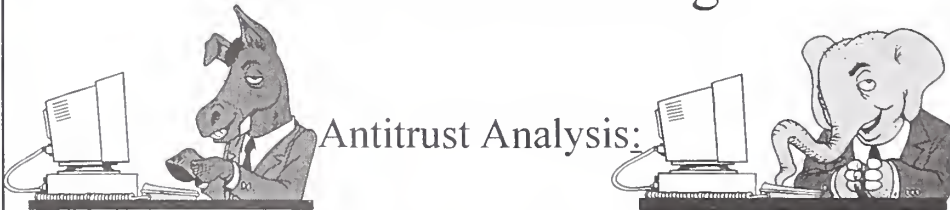
- B2B e-marketplaces – just like more traditional marketplaces – have the potential to raise traditional antitrust questions.
- Many B2Bs are procompetitive.
- Most antitrust issues B2Bs raise can be solved.

Antitrust Issues

- Proceed with caution in light of four general antitrust issues
 - Information Exchange
 - Joint Purchasing (Monopsony)
 - Exclusion
 - Exclusivity



Information Exchange



- What is the market structure (*i.e.*, is it already susceptible to collusion)?
- What are the market shares of those sharing information?
- What type of information is being shared?
- How old is the information?
- How accessible is the information otherwise?

Joint Purchasing

- Monopsony is the exercise of market power by driving down the purchase price of an input by buying less of it and depressing output.
- Antitrust Analysis: Does the buying group account for a sufficient share of the buying market such that reducing its purchases would likely depress the price of the inputs bought?



Exclusion

- Exclusionary conduct refers to restraints designed to keep outsiders out.
- Antitrust Analysis:
 - Focus on the extent of the disadvantage that rivals likely would experience if B2B access were denied or limited (the input market).
 - Examine the likely impact on competition in the market in which the excluded rivals participate (the output market).

Exclusivity

- Exclusivity refers to keeping insiders in (e.g., “you can participate only in this B2B and not any other B2B”).



Incentives and Restrictions (Exclusivity cont'd)

- Incentives
 - Rebates
 - Revenue-sharing
 - Profit interests
- Restrictions
 - Minimum volume commitments or percentage requirements
 - Bans on investments in other B2Bs





Exclusivity Guideposts



- Antitrust Analysis: Does the practice tie up almost all available volume rather than just competing on the merits to attract volume?
- All else being equal, competitive concerns are magnified:
 - The greater the market share of the B2B participant-owners;
 - The greater the restraints on participation outside the B2B; and
 - The less interoperability with other B2Bs.



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FTC on Covisint:

- “Because Covisint is in the early stages of its development and has not yet adopted bylaws, operating rules, or terms for participant access, because it is not yet operational, and in particular because it represents such a large share of the automobile market, we cannot say that implementation of Covisint venture will not cause competitive concerns.”

Conclusion: An Ounce of Prevention is Worth a Pound of Cure

- B2Bs are most likely to be able to achieve their stated efficiencies and avoid antitrust risk by considering antitrust issues when developing operating rules and bylaws.



- Antitrust compliance is not a “one time thing,” but rather involves follow-up during implementation and operation.

Entering the 21st Century:

**Competition Policy in the World of
B2B Electronic Marketplaces**

**A Report by the Federal Trade Commission Staff
October 2000**

EXECUTIVE SUMMARY*

Overview of B2B Electronic Marketplaces Although treated as a group in this Staff Report, B2Bs are remarkably diverse. B2Bs serve a broad array of industries, from metals to fresh produce to hotels to chemicals to energy, with some B2Bs focusing horizontally (across various industries) and others vertically (on only one industry). Through B2Bs, participants buy and sell a wide variety of goods and services, from materials to be used in a firm's final product to things that just keep the firm running. B2Bs can be organized under a variety of ownership structures: some are founded by companies who use them; some are founded by third parties who do not plan to buy or sell through them; some are a blend of the two. Prices in B2Bs can likewise be established in various ways: by auction, catalog, a bid-ask system, or negotiation, for example. B2Bs may earn revenue from multiple sources, including transaction-related fees, membership fees, service fees, advertising and marketing fees, and sales of data and information. Market forces are continuing to sort out issues such as which, and how many, B2Bs will succeed, the extent to which potential efficiencies will be realized through B2Bs or instead through private networks, and the likely extent of interoperability among B2Bs.

Efficiencies of B2B Electronic Marketplaces B2B marketplaces have the potential to generate significant efficiencies, winning lower prices, improved quality and greater innovation for consumers. Many panelists stated that savings and increased competition through B2Bs could be substantial; indeed, one business analyst commented that, "[f]rom a very macro perspective, B2B e-commerce is simply the next generation of productivity growth for the U.S. economy."¹

B2Bs can gain efficiencies in a variety of ways. B2Bs can reduce administrative costs, such as the time and energy a business expends to process an order and correct any mistakes in its processing. B2Bs can reduce search costs, that is, the costs buyers incur identifying suppliers and their offerings, and vice-versa. For example, B2Bs can make it easier for buyers to comparison-shop, replacing thumbing through bulky paper catalogs with quick and efficient mouseclick searching. Reduced search costs also mean that suppliers can have greater and cheaper access to more potential customers. Such reduced search costs can make new sales channels viable, creating markets for goods and services not traded before.

B2Bs can help check unmonitored corporate spending by using technology to enforce spending and other limits on in-house buyers. B2Bs can facilitate efficient joint purchasing, which may help reduce transaction and manufacturing costs and produce other cost-savings. B2Bs can be integrated with a firm's internal computer systems in order to continue reaping, and expanding upon, the benefits of the earlier computer-based systems. Enhanced efficiencies may

* This Report represents the views of the staff of the Federal Trade Commission; it does not necessarily reflect the Commission's views or the views of any individual Commissioner.

¹ See Teagarden 100. Materials from the workshop are available at www.ftc.gov/bc/b2b/index.htm.

also arise from increased collaboration facilitated by B2Bs, such as joint product design by the various firms involved in putting a product together. Finally, the heightened interaction between buyers and suppliers that B2Bs offer may facilitate supply chain management. That is, B2Bs could enable suppliers all along the supply chain, potentially reaching multiple tiers of suppliers, to learn more quickly what buyers want and when they want it, reducing forecasting that traditionally has proved inaccurate and expensive.

This is an impressive list. Although panelists noted that efficiencies may be more easily articulated than realized, the efficiencies that B2Bs may offer merit serious attention in light of their significant potential for cost savings and increased competition.

Antitrust Analysis of B2B Electronic Marketplaces B2Bs may raise a variety of antitrust issues. Workshop panelists reported, however, that the antitrust concerns that B2Bs may raise are not new and agreed that B2Bs are amenable to traditional antitrust analysis. Some panelists commented that, when antitrust concerns do arise, familiar safeguards may be sufficient to address those issues. Indeed, it appears likely that many potential concerns could be eliminated through well-crafted B2B operating rules. Consequently, the discussion that follows does not warn of insoluble problems, but rather lays the foundation for identifying and addressing circumstances that warrant antitrust scrutiny.²

Rather than address all potential issues, this Report focuses only on those issues that were discussed extensively at the workshop. The efficiencies and possible enhancements to competition that B2Bs can offer stem in part from their collaborative nature, but collaboration among firms also could facilitate anticompetitive conduct in two types of broadly defined markets: the markets for goods and services traded on B2Bs (or derived from those traded on B2Bs) at both the seller and the buyer levels, and the market for marketplaces themselves. In the market for goods and services, workshop panelists noted that competition may be affected by the extent to which information is shared and by whether joint purchasing or exclusionary

² To date, the Commission has reviewed only one B2B. See *In re Covisint, Inc.*, File No. 001 0127 (Sept. 11, 2000), *closing letter to General Motors Corp., Ford Motor Co., and DaimlerChrysler AG* available at www.ftc.gov/os/2000/09/covisintchrysler.htm (last visited October 23, 2000). In its letter closing the investigation of whether the formation of Covisint violates Section 7 of the Clayton Act and terminating the waiting period under the Hart-Scott-Rodino Antitrust Improvements Act, the Commission found no further action warranted at this time but stated as follows:

Because Covisint is in the early stages of its development and has not yet adopted bylaws, operating rules, or terms for participant access, because it is not yet operational, and in particular because it represents such a large share of the automobile market, we cannot say that implementation of the Covisint venture will not cause competitive concerns.

Id.

(membership or access) practices are implemented. In the market for marketplaces, panelists suggested that exclusivity could affect the development of competition.

Competition Issues in the Market for Goods and Services: Information-Sharing Agreements The Internet allows firms to share information at an unprecedented rate. Depending on the operating rules, participants in a B2B could learn in real time, for example, the identities of the purchaser and seller in a transaction, the quantity purchased, the date and time of the transaction, and the purchase price. B2Bs capitalizing on that power can increase efficiencies in the supply chain and facilitate prompt competitive responses in the market, but they also might injure competition by facilitating price or other anticompetitive coordination. Workshop panelists also voiced concern about whether a B2B's operating rules would permit its participant-owners – particularly those with seats on the B2B's board of directors, or places in upper management of the B2B – access to sensitive data about their rivals.

The antitrust analysis of agreements to share competitively sensitive information would ask whether they might facilitate coordination on price or other terms. The analysis would examine the structure of the market that the B2B serves, including market concentration and the market shares of those sharing the information, whether the information was shared among competitors, the kind of information being shared, and the reasons for sharing. If a market is less susceptible to collusion, information-sharing through B2Bs generally poses fewer collusion risks. All other things equal, sharing information relating to purchases of direct goods may convey competitively sensitive information about a rival's business and, consequently, is more likely to raise antitrust issues than the sharing of information relating to indirect goods. Similarly, sharing contingent or future pricing information is generally more troubling than sharing information about past transactions, and sharing competitively sensitive information that is uniquely and readily found on the B2B is generally more likely to raise concern than sharing such information that can easily be found elsewhere. Panelists identified many possible mechanisms for handling these concerns, including erecting firewalls within the B2B, segmenting catalogs, and other measures.

Joint Purchasing Several panelists voiced concern that B2Bs, through operating rules, could allow the exercise of monopsony power. Monopsony is buyer-side market power that lets a buyer or buyer group drive down the purchase price of an input by buying less of it and, therefore, depress output. The concern arises most directly when a B2B could be used by a large buying group to coordinate the reduction of their purchases in order to lower price.

Panelists stressed the importance of asking whether the buyer group accounts for a sufficient share of the buying market such that reducing its purchases would likely depress the price of the inputs bought. They also emphasized that buyer groups driving prices down through monopsony power are not to be confused with buyer groups that get better prices through increased efficiencies, such as by savings to suppliers realized in sales to the group.

Exclusionary Practices Several panelists voiced concern about the potential for exclusionary operating rules, and the possibility that some B2Bs would discriminate against, if not overtly exclude, the rivals of its owner-participants. Panelists noted that

exclusionary practices (such as presenting information on the screen in a way that favors the B2B's owners or using discriminatory operating rules to leave rivals with reduced functionality or higher costs) might raise rivals' costs of doing business and limit their ability to provide effective competition in markets for the goods that they sell.

Analysis of this issue would focus first on the extent of the disadvantage that rivals likely would experience if B2B access were denied or limited, taking account of any substitutes, such as offline markets, that could be used equally well to buy or sell the goods.³ Several panelists suggested that strong network efficiencies in an established B2B might make alternatives significantly more costly and less competitive. The analysis would also inquire whether the effects on rivals' costs could be deterred or counteracted by entry of alternative marketplaces or by counter-strategies that rivals might pursue.

Next, the analysis would examine the likely impact on competition in the markets in which the excluded firms participate. If the excluded rivals were important to maintain effective downstream competition (e.g., for finished products), exclusionary conduct that significantly raised their costs may cause anticompetitive harm. The analysis would consider factors such as downstream market concentration, theories of unilateral and coordinated anticompetitive effects in the downstream markets and downstream entry, as well as any unique competitive significance of the excluded firms. Finally, if anticompetitive harm were likely, the analysis would ask whether the exclusion was reasonably necessary to achieve procompetitive benefits that likely would offset the anticompetitive harm.

Exclusivity Could Affect Competition Among Marketplaces Several panelists expressed concern that a B2B might undermine the development of competition in the market for B2Bs (and any effective substitutes) by "over inclusion" of industry members or by improperly encouraging or requiring buyers or sellers to deal with it to the exclusion of other B2Bs. The antitrust inquiry would ask whether the exclusivity practices leave available sufficient buying, selling, or other support to sustain alternative marketplaces capable of maintaining competition. Indeed, to the extent that ownership interests yield incentives that result in *de facto* exclusivity or "over inclusion," the antitrust inquiry would be structured in the same manner.

To capture business, a B2B may use a variety of incentives – such as promises of rebates, revenue-sharing, or profit interests for committing some amount of volume to the B2B – or restrictions, including rules imposing minimum volume or minimum percentage requirements, bans on investment in other B2Bs, or pressure on suppliers and buyers to urge them to trade on a particular B2B. Indeed, exclusivity practices could exacerbate potential effects from network or other scale economies that may make it difficult for an entrant to start small, attract the necessary volume, compete effectively, and grow to become a significant factor in the market.

If a B2B's overinclusiveness or exclusivity practices do not leave sufficient available

³ "Goods" refers to services sold and purchased through B2Bs as well.

support to sustain alternative B2Bs, exclusivity may cause anticompetitive harm. If harm appears likely, the analysis would ask about procompetitive benefits attributable to exclusivity.

Although inquiry into these issues is highly fact-intensive, some guideposts can be planted. All else held equal (including the ability to achieve efficiencies and innovations), competitive concerns are magnified (i) the greater the market share of the B2B participant-owners; (ii) the greater the restraints on participation outside the B2B; and (iii) the less the interoperability with other B2Bs. This does not mean that industry consortia B2Bs are presumptively unlawful or that minimum volume commitments cannot be imposed in many circumstances. It does suggest that high levels of industry ownership or substantial minimum purchase requirements will likely draw a closer look.

Conclusions and Themes for the Future

B2Bs differ in many respects, which is not surprising, given the enormous variety of offline business commerce that B2Bs seek to move online. Structures, operating rules, and practices that may make good business sense in one set of market circumstances may prove costly and inefficient in other business settings. In carrying out its enforcement responsibilities, the FTC and industry will likely benefit from further dialogue about the types of B2B structures, operating rules, and practices that, in particular circumstances, are most likely to ensure both antitrust compliance and the efficiencies that B2Bs promise.

Who Wins, Who Loses, and How Will E-Markets Affect Rural America?

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**Remarks at USDA Ag Outlook Forum Panel, Will
E-Commerce Renovate the Agricultural
Marketplace? Panel no. 2, Session no. 9,
Washington, DC, Feb. 22, 2001**

Outline

- Some Losers
- Some Winners
- Challenges for Rural Business
- Thoughts on Policy

Losers

■ Farmers who choose not to use.

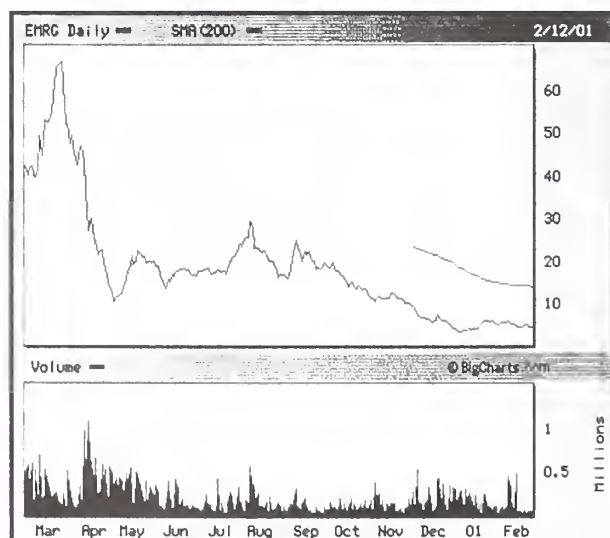
*Of farms with \$250,000 or more in sales,
65% use computer for business and 52%
have Internet (NASS, June 1999)*

■ Rural businesses that lack access.

*7 exchanges in Texas have no local dial-up
ISP. (Public Utility Commission of Tx, Jan. 2001)*

Losers, continued.

■ Investors



Winners

- Online functions to aid in supply chain
 - "B2B"
 - *the Web*
- Example: Franchisees

More Winners

- Tech Service Firms Who Understand Needs of Farm and Rural Businesses
 - Traceability services like FoodTrak
 - Advanced Telecom providers
 - Software developers

Why will they win?

- Commitment among the parties. Business relationship first.
- Competitiveness. Ag-food businesses are accustomed to the price competition.
- Customer focused.
Ex. On-line cattle marketing
- Can manage risks.
Ex. On-line auctions and third-party guarantees

The Cattle – Beef Alliances

- Formal supply chains
- Extensive information sharing
- Mainly in breeding and production
- Some retailers are getting involved

Looking to the Future

- Technology and scale
 - Distance and connections
 - Smaller enterprises
 - XML (J. Greenspan)
- Human capital
- Policy

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